

Volume III, Pages 7535-11327

UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

14-1297

OPLUS TECHNOLOGIES, LTD.,

Plaintiff-Appellee,

v.

VIZIO, INC.,

Defendant-Appellant

SEARS HOLDINGS CORPORATION,

Defendant.

Appeal from the United States District Court for the Central District of California
in Case No. 12-cv-5707, Senior District Judge Mariana R. Pfaelzer

CORRECTED NONCONFIDENTIAL JOINT APPENDIX

Dated: November 13, 2014

OPLUS TECHNOLOGIES, LTD. v. VIZIO, INC., APPEAL NO. 14-1297 (FED. CIR.)**JOINT APPENDIX****VOLUME I of III**

Appendix Page Range	Dkt. No. (if applicable)	Date	Document
A1 - A18	123	04/05/2013	Stipulated Protective Order
A19 - A37	220	02/03/2014	Order Denying Defendant VIZIO, Inc.'s Motion for Attorneys' Fees and Expert Witness Fees
A38 - A61	183	10/02/2013	Order Granting In Part and Denying In Part Defendant VIZIO, Inc.'s Motion for Summary Judgment of Invalidity, Granting Defendant VIZIO's Motion for Summary Judgment of Noninfringement, and Denying Plaintiff Oplus Technologies, Ltd.'s Motion to Compel
A62 - A63	185	10/17/2013	Judgment in Favor of VIZIO, Inc. of Noninfringement of U.S. Patent Nos. 6,239,842 and 7,271,840 and Invalidity of U.S. Patent No. 6,239,842
A64 - A96	N/A	N/A	Docket Sheet – <i>Oplus Technologies, Ltd. v. Sears Holdings Corporation, et al.</i> , Case No. 2:12-cv-5707 (C.D. Cal.)
A97 - A102	N/A	N/A	Docket Sheet – <i>In re: Oplus Technologies, Ltd. Patent Litigation</i> , MDL No. 2400 (J.P.M.L.)
A103 - A115	N/A	N/A	U.S. Patent No. 6,239,842
A116 - A131	N/A	N/A	U.S. Patent No. 7,271,840
A132 - A162	N/A	07/24/2012	Transcript – Scheduling Conference
A249 - A316	N/A	02/27/2013	Transcript – Motion for Summary Judgment Hearing
A317 -	N/A	06/07/2013	Transcript – Motion for Protection from

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A395 - A489	N/A	09/09/2013	Transcript – Motion for Summary Judgment Hearing
A490 - A533	N/A	12/09/2013	Transcript – Motion for Attorneys’ Fees Hearing
A538 - A543	14	12/20/2011	Corrected First Amended Complaint by Oplus Technologies, Ltd. against Sears Holdings Corporation, VIZIO, Inc.
A576 - A582	14-3	12/20/2011	Exhibit C to Corrected First Amended Complaint
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A1454 - A1471	101-16	01/07/2013	Declaration of Dr. Sheila S. Hemami
A1513 - A1513	105	01/10/2013	Minutes of Markman Hearing held before Judge Mariana R. Pfaelzer
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A1830 - A1901	114	03/20/2013	Joint Stipulation re: Oplus' Motion to Compel Production of Documents
A1902 - A1906	114-1	03/20/2013	(Attachments: # (1) Exhibit 1)
A1945 - A1956	114-7	03/20/2013	(Attachments: # (7) Exhibit C)
A2009 - A2076	117-3	04/01/2013	(Attachments: # (3) Exhibit B to Koole Declaration)

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A2765 - A2774	139-2	06/14/2013	Exhibit B to Notice of Amended Infringement Contentions
A2775 - A2787	139-3	06/14/2013	Exhibit C to Notice of Amended Infringement Contentions
A2788 -	139-4	06/14/2013	Exhibit D to Notice of Amended

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A2810			Infringement Contentions
A2815 - A2815	144	06/25/2013	Minutes of Telephonic Status Conference held before Judge Mariana R. Pfaelzer.
A2816 - A2818	148	07/29/2013	Notice of Motion and Motion for Summary Judgment as to Noninfringement of U.S. Patent Nos. 6,239,842 and 7,271,840 filed by Defendant VIZIO, Inc..
A2819 - A2849	153	07/29/2013	Memorandum of Points and Authorities in Support of Motion for Summary Judgment of Noninfringement
A2873 - A2877	148-3	07/29/2013	Declaration of Charles C. Koole in Support of Motion for Summary Judgment of Noninfringement
A2910 - A2986	148-6	07/29/2013	Exhibit 3 to Koole Declaration
A3003 - A3034	154	07/29/2013	Exhibit 5 to Koole Declaration
A3045 - A3051	148-11	07/29/2013	Exhibit 8 to Koole Declaration
A3060 - A3163	148-13	07/29/2013	Exhibit 10 to Koole Declaration
A3682 - A4254	148-26	07/29/2013	Exhibit B to Declaration of Sheila Hemami
A4259 - A4261	150	07/29/2013	Notice of Motion and Motion for Summary Judgment as to Invalidity of U.S. Patents Nos. 6,239,842 and 7,271,840 filed by Defendant VIZIO, Inc.
A4262 - A4292	150-1	07/29/2013	Memorandum of Points and Authorities in support of VIZIO's Motion for Summary Judgment of Invalidity of U.S. Patents Nos. 6,239,842 and 7,271,840
A4462 - A4476	150-11	07/29/2013	Exhibit 8 to Declaration of Charles Koole

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A5315	211-4	11/25/2013	Exhibit AZ to Supplemental Declaration of Charles C. Koole
A5542 - A5594	156	08/16/2013	Joint Stipulation re: Oplus' Motion to Compel Discovery
A5595 - A5598	156-1	08/16/2013	Declaration of Gabriel I. Opatken
A5599 - A5602	156-2	08/16/2013	Exhibit A to Declaration of Gabriel I. Opatken
A5603 - A5605	156-3	08/16/2013	Exhibit B to Declaration of Gabriel I. Opatken
A5608 - A5613	156-5	08/16/2013	Exhibit D to Declaration of Gabriel I. Opatken
A5793 - A5795	157	08/16/2013	Notice of Motion re: Joint Stipulation re: Oplus' Motion to Compel Discovery
A5796 - A5820	159	08/19/2013	Oplus' Response to Vizio, Inc.'s Motion For Summary Judgment of Invalidity
A5853 - A5855	159-2	08/19/2013	Declaration of Daniel Ferri
A6221 - A6246	171	08/19/2013	Opposition to Motion for Summary Judgment as to Noninfringement of U.S. Patent Nos. 6,239,842 and 7,271,840
A6290 - A6295	160-2	08/19/2013	Declaration of Daniel R. Ferri
A6373 - A6476	160-4	08/19/2013	Exhibit B to Declaration of Daniel R. Ferri
A6477 - A6483	160-5	08/19/2013	Exhibit C to Declaration of Daniel R. Ferri
A6484 - A6487	160-6	08/19/2013	Exhibit D to Declaration of Daniel R. Ferri
A6488 - A6525	160-7	08/19/2013	Exhibit E to Declaration of Daniel R. Ferri
A6567 - A6609	160-9	08/19/2013	Exhibit G to Declaration of Daniel R. Ferri
A6610 - A6703	160-10	08/19/2013	Exhibit H to Declaration of Daniel R. Ferri
A6749 -	160-11	08/19/2013	Exhibit J to Declaration of Daniel R.

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A6752			Ferri
A6895 - A7017	160-23	08/19/2013	Exhibit X to Declaration of Daniel R. Ferri
A7354 - A7367	168-5	08/26/2013	Exhibit 21 to Supplemental Declaration of Charles Koole
A7368 - A7384	180	08/26/2013	Exhibit 22 to Supplemental Declaration of Charles Koole
A7385 - A7402	180	08/26/2013	Exhibit 23 to Supplemental Declaration of Charles Koole

CONFIDENTIAL MATERIAL OMITTED

The material omitted in Appendix Page Range A3003-3034, A7368-7384, and A7385-7402 includes testimony from a VIZIO witness describing VIZIO's business strategy.

OPLUS TECHNOLOGIES, LTD. v. VIZIO, INC., APPEAL NO. 14-1297 (FED. CIR.)**JOINT APPENDIX****VOLUME III of III**

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A7535 - A7538	190	10/31/2013	Notice of Motion and Motion for Attorney Fees and Expert Witness Fees Pursuant to 35 U.S.C. 285, 28 U.S.C. 1927, and the Court's Inherent Power filed by Defendant VIZIO, Inc.
A7539 - A7594	195	10/31/2013	Memorandum of Points and Authorities in Support of Defendant Vizio, Inc.'s Motion for Attorneys' Fees and Expert Witness Fees Pursuant to 35 U.S.C. Section 285, 28 U.S.C. Section 1927, and the Court's Inherent Power.
A7597 - A8049	196	10/31/2013	Declaration of Charles C. Koole in Support of Defendant Vizio, Inc.'s Motion for Attorneys' Fees and Expert Witness Fees Pursuant to 35 U.S.C. Section 285, 28 U.S.C. Section 1927, and the Court's Inherent Power, and Exhibits Thereto
A8052 - A8084	206	11/18/2013	Plaintiff's Opposition to Vizio's Motion for Attorneys' Fees and Expert Witness Fees Pursuant to 35 U.S.C. Section 285, 28 U.S.C. Section 1927, and the Court's Inherent Power
A8085 - A8096	203	11/18/2013	Declaration of Daniel R. Ferri in opposition to Motion for Attorney Fees and Expert Witness Fees Pursuant to 35 U.S.C. 285, 28 U.S.C. 1927, and the Court's Inherent Power
A8136 - A8435	203-3	11/18/2013	Exhibit C Part 1 to the Declaration of Daniel R. Ferri

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A9437 - A9443	203-10	11/18/2013	Exhibit D to the Declaration of Daniel R. Ferri
A9444 - A9455	203-11	11/18/2013	Exhibit E to the Declaration of Daniel R. Ferri
A9468 - A9478	203-14	11/18/2013	Exhibit H to the Declaration of Daniel R. Ferri
A9479 - A9497	203-15	11/18/2013	Exhibit I to the Declaration of Daniel R. Ferri
A9504 - A9565	203-17	11/18/2013	Exhibit K to the Declaration of Daniel R. Ferri
A9566 - A9575	207	11/18/2013	Exhibit L to the Declaration of Daniel R. Ferri
A9576 - A9592	203-19	11/18/2013	Exhibit M to the Declaration of Daniel R. Ferri
A9593 - A9595	203-20	11/18/2013	Exhibit N to the Declaration of Daniel R. Ferri
A9596 - A9599	203-21	11/18/2013	Exhibit O to the Declaration of Daniel R. Ferri
A9600 - A9601	203-22	11/18/2013	Exhibit P to the Declaration of Daniel R. Ferri
A9602 - A9607	203-23	11/18/2013	Exhibit Q to the Declaration of Daniel R. Ferri
A9608 - A9609	203-24	11/18/2013	Exhibit R to the Declaration of Daniel R. Ferri
A9610 - A9614	203-25	11/18/2013	Exhibit S to the Declaration of Daniel R. Ferri
A9615 - A9617	203-26	11/18/2013	Exhibit T to the Declaration of Daniel R. Ferri
A9618 - A9621	203-27	11/18/2013	Exhibit U to the Declaration of Daniel R. Ferri
A9622 - A9630	203-28	11/18/2013	Exhibit V to the Declaration of Daniel R. Ferri
A9631 - A9640	203-29	11/18/2013	Exhibit W to the Declaration of Daniel R. Ferri
A9656 - A9679	203-31	11/18/2013	Exhibit Y to the Declaration of Daniel R. Ferri

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A9686 - A9759	203-33	11/18/2013	Exhibit AA to the Declaration of Daniel R. Ferri
A9760 - A9762	203-34	11/18/2013	Exhibit AB to the Declaration of Daniel R. Ferri
A9929 - A9934	203-39	11/18/2013	Exhibit AG to the Declaration of Daniel R. Ferri
A9935 - A9998	203-40	11/18/2013	Exhibit AH to the Declaration of Daniel R. Ferri
A10029 - A10030	203-45	11/18/2013	Exhibit AM to the Declaration of Daniel R. Ferri
A10031 - A10032	203-46	11/18/2013	Exhibit AN to the Declaration of Daniel R. Ferri
A10033 - A10044	203-47	11/18/2013	Exhibit AO to the Declaration of Daniel R. Ferri
A10059 - A10101	203-49	11/18/2013	Exhibit AQ to the Declaration of Daniel R. Ferri
A10492 - A10495	211-2	11/25/2013	Supplemental Declaration of Charles C. Koole
A10515 - A10516	211-5	11/25/2013	Exhibit BA Supplemental Declaration of Charles C. Koole
A10517 - A10518	211-6	11/25/2013	Exhibit BB to Supplemental Declaration of Charles C. Koole
A10601 - A10604	218	12/16/2013	Declaration of Raymond P. Niro
A10738 - A10738	2 (MDL)	07/24/2012	Motion to Transfer (Amended) Filed by: Oplus Technologies
A10943	17-23 (MDL)	08/14/2012	Exhibit F to Declaration of James J. Lukas
A11062 - A11064	26 (MDL)	10/03/2012	Order Denying Transfer
A11065 - A11067	93 (1:11-cv-08539)	09/03/2014	Order
A11068 - A11075	84 (1:11-cv-08539)	07/28/2014	Report and Recommendation
A11076 - A11089	N/A	12/09/2013	PowerPoint Presentation Used by Plaintiff at Hearing on December 9, 2013

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A11090 - A11107	N/A	02/28/2013	Non-party MediaTek USA Inc.'s Objections and Responses to the "Subpoena to Produce Documents, Information, or Objects to Permit Inspection of Premises in a Civil Action" Dated February 14, 2013 and Issued by Oplus Technologies, Ltd.
A11108 - A11141	N/A	02/28/2013	Non-party Qualcomm Incorporated's Responses and Objections to Oplus Technologies, Ltd.'s Subpoena to Produce Documents, Etc. and Subpoena to Testify at Deposition in a Civil Action
A11142 - A11153	N/A	03/01/2013	Non-party Witness STMicroelectronics, Inc.'s Responses and Objections to Plaintiff's Subpoenas for Production of Documents and Testimony
A11154 - A11164	364 (6:11-cv-00421)	08/06/2014	Order and Opinion Denying Attorney's Fees
A11165 - A11183	62 (1:11-cv-08539)	05/16/2014	Amended Memorandum of Points and Authorities in Support of Defendant VIZIO, Inc.'s Motion for Attorneys' Fees and Expenses Pursuant to 35 U.S.C. § 285, 28 U.S.C. § 1927, and the Court's Inherent Power
A11184 - A11299	62-1 (1:11-cv-08539)	05/16/2014	Amended Declaration of Adrian M. Pruetz in Support of Defendant VIZIO, Inc.'s Motion for Attorneys' Fees and Expenses Pursuant to 35 U.S.C. § 285, 28 U.S.C. § 1927, and the Court's Inherent Power
A11300 - A11301	98 (1:11-cv-07539)	09/10/2014	Order Denying Oplus Technologies, Ltd.'s Motion for Attorneys' Fees and Expenses
A11302 - A11305	84 (1:10-cv-04298)	12/07/2012	Order Granting Defendant's Motion for Attorneys' Fees and Expenses in <i>Illinois Comp. Res. v. Best Buy Stores, L.P.</i> ,

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			Case No. 1:10-cv-04298, Dkt. 84 (N.D. Ill. Dec. 7, 2012)
A11306 - A11327	340 (9:09-cv-81046)	08/31/2012	Order Granting Motion for Fees and Costs, Requesting Submission of Materials for In Camera Review and Granting Motion to Strike in <i>Innovative Biometric Tech., LLC v. Toshiba Am. Info. Sys., Inc.</i> , Case No. 9:09-cv-81046 (S.D. Fla. Aug. 31, 2012)

CONFIDENTIAL MATERIAL OMITTED

The material omitted in Appendix Page Range A9566-9575 includes testimony from a VIZIO witness describing VIZIO's business strategy.

The material omitted in Appendix Page Range A7539-7594 describes confidential details of Oplus Technologies, Ltd.'s business, including the purchase price of the patent portfolio including the patents that were at issue in this case.

The material omitted in Appendix Page Range A7597-8049 includes VIZIO counsel's confidential invoices to VIZIO for the fees it incurred in this action.

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A3217 - A3681	148-25	07/29/2013	Expert Report of Dr. Sheila S. Hemami Regarding the Invalidity of U.S. Patent Nos. 6,239,842 and 7,271,840
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A5542 - A5594	156	08/16/2013	Joint Stipulation re: Oplus' Motion to Compel Discovery
A5595 - A5598	156-1	08/16/2013	Declaration of Gabriel I. Opatken

A5599 - A5602	156-2	08/16/2013	Exhibit A to Declaration of Gabriel I. Opatken
A5603 - A5605	156-3	08/16/2013	Exhibit B to Declaration of Gabriel I. Opatken
A5608 - A5613	156-5	08/16/2013	Exhibit D to Declaration of Gabriel I. Opatken
A5793 - A5795	157	08/16/2013	Notice of Motion re: Joint Stipulation re: Oplus' Motion to Compel Discovery
A5796 - A5820	159	08/19/2013	Oplus' Response to Vizio, Inc.'s Motion For Summary Judgment of Invalidity
A5853 - A5855	159-2	08/19/2013	Declaration of Daniel Ferri
A6221 - A6246	171	08/19/2013	Opposition to Motion for Summary Judgment as to Noninfringement of U.S. Patent Nos. 6,239,842 and 7,271,840
A6290 - A6295	160-2	08/19/2013	Declaration of Daniel R. Ferri
A6373 - A6476	160-4	08/19/2013	Exhibit B to Declaration of Daniel R. Ferri
A6477 - A6483	160-5	08/19/2013	Exhibit C to Declaration of Daniel R. Ferri
A6484 - A6487	160-6	08/19/2013	Exhibit D to Declaration of Daniel R. Ferri
A6488 - A6525	160-7	08/19/2013	Exhibit E to Declaration of Daniel R. Ferri
A6567 - A6609	160-9	08/19/2013	Exhibit G to Declaration of Daniel R. Ferri
A6610 - A6703	160-10	08/19/2013	Exhibit H to Declaration of Daniel R. Ferri
A6749 - A6752	160-11	08/19/2013	Exhibit J to Declaration of Daniel R. Ferri
A6895 - A7017	160-23	08/19/2013	Exhibit X to Declaration of Daniel R. Ferri
A7354 - A7367	168-5	08/26/2013	Exhibit 21 to Supplemental Declaration of Charles Koole
A7368 - A7384	180	08/26/2013	Exhibit 22 to Supplemental Declaration of Charles Koole
A7385 - A7402	180	08/26/2013	Exhibit 23 to Supplemental Declaration of Charles Koole

CONFIDENTIAL MATERIAL OMITTED

The material omitted in Appendix Page Range A3003-3034, A7368-7384, and A7385-7402 includes testimony from a VIZIO witness describing VIZIO's business strategy.

OPLUS TECHNOLOGIES, LTD. v. VIZIO, INC., APPEAL NO. 14-1297 (FED. CIR.)**JOINT APPENDIX****VOLUME III of III**

Appendix Page Range	Dkt. No. (if applicable)	Date	Document
A7535 - A7538	190	10/31/2013	Notice of Motion and Motion for Attorney Fees and Expert Witness Fees Pursuant to 35 U.S.C. 285, 28 U.S.C. 1927, and the Court's Inherent Power filed by Defendant VIZIO, Inc.
A7539 - A7594	195	10/31/2013	Memorandum of Points and Authorities in Support of Defendant VIZIO, Inc.'s Motion for Attorneys' Fees and Expert Witness Fees Pursuant to 35 U.S.C. Section 285, 28 U.S.C. Section 1927, and the Court's Inherent Power.
A7597 - A8049	196	10/31/2013	Declaration of Charles C. Koole in Support of Defendant VIZIO, Inc.'s Motion for Attorneys' Fees and Expert Witness Fees Pursuant to 35 U.S.C. Section 285, 28 U.S.C. Section 1927, and the Court's Inherent Power, and Exhibits Thereto
A8052 - A8084	206	11/18/2013	Plaintiff's Opposition to VIZIO's Motion for Attorneys' Fees and Expert Witness Fees Pursuant to 35 U.S.C. Section 285, 28 U.S.C. Section 1927, and the Court's Inherent Power
A8085 - A8096	203	11/18/2013	Declaration of Daniel R. Ferri in opposition to Motion for Attorney Fees and Expert Witness Fees Pursuant to 35 U.S.C. 285, 28 U.S.C. 1927, and the Court's Inherent Power
A8136 - A8435	203-3	11/18/2013	Exhibit C Part 1 to the Declaration of Daniel R. Ferri
A9437 -	203-10	11/18/2013	Exhibit D to the Declaration of Daniel R.

A9443			Ferri
A9444 - A9455	203-11	11/18/2013	Exhibit E to the Declaration of Daniel R. Ferri
A9468 - A9478	203-14	11/18/2013	Exhibit H to the Declaration of Daniel R. Ferri
A9479 - A9497	203-15	11/18/2013	Exhibit I to the Declaration of Daniel R. Ferri
A9504 - A9565	203-17	11/18/2013	Exhibit K to the Declaration of Daniel R. Ferri
A9566 - A9575	207	11/18/2013	Exhibit L to the Declaration of Daniel R. Ferri
A9576 - A9592	203-19	11/18/2013	Exhibit M to the Declaration of Daniel R. Ferri
A9593 - A9595	203-20	11/18/2013	Exhibit N to the Declaration of Daniel R. Ferri
A9596 - A9599	203-21	11/18/2013	Exhibit O to the Declaration of Daniel R. Ferri
A9600 - A9601	203-22	11/18/2013	Exhibit P to the Declaration of Daniel R. Ferri
A9602 - A9607	203-23	11/18/2013	Exhibit Q to the Declaration of Daniel R. Ferri
A9608 - A9609	203-24	11/18/2013	Exhibit R to the Declaration of Daniel R. Ferri
A9610 - A9614	203-25	11/18/2013	Exhibit S to the Declaration of Daniel R. Ferri
A9615 - A9617	203-26	11/18/2013	Exhibit T to the Declaration of Daniel R. Ferri
A9618 - A9621	203-27	11/18/2013	Exhibit U to the Declaration of Daniel R. Ferri
A9622 - A9630	203-28	11/18/2013	Exhibit V to the Declaration of Daniel R. Ferri
A9631 - A9640	203-29	11/18/2013	Exhibit W to the Declaration of Daniel R. Ferri
A9656 - A9679	203-31	11/18/2013	Exhibit Y to the Declaration of Daniel R. Ferri
A9686 - A9759	203-33	11/18/2013	Exhibit AA to the Declaration of Daniel R. Ferri
A9760 -	203-34	11/18/2013	Exhibit AB to the Declaration of Daniel R.

A9762			Ferri
A9929 - A9934	203-39	11/18/2013	Exhibit AG to the Declaration of Daniel R. Ferri
A9935 - A9998	203-40	11/18/2013	Exhibit AH to the Declaration of Daniel R. Ferri
A10029 - A10030	203-45	11/18/2013	Exhibit AM to the Declaration of Daniel R. Ferri
A10031 - A10032	203-46	11/18/2013	Exhibit AN to the Declaration of Daniel R. Ferri
A10033 - A10044	203-47	11/18/2013	Exhibit AO to the Declaration of Daniel R. Ferri
A10059 - A10101	203-49	11/18/2013	Exhibit AQ to the Declaration of Daniel R. Ferri
A10492 - A10495	211-2	11/25/2013	Supplemental Declaration of Charles C. Koole
A10515 - A10516	211-5	11/25/2013	Exhibit BA Supplemental Declaration of Charles C. Koole
A10517 - A10518	211-6	11/25/2013	Exhibit BB to Supplemental Declaration of Charles C. Koole
A10601 - A10604	218	12/16/2013	Declaration of Raymond P. Niro
A10738 - A10738	2 (MDL)	07/24/2012	Motion to Transfer (Amended) Filed by: Oplus Technologies
A11062 - A11064	26 (MDL)	10/03/2012	Order Denying Transfer
A11065 - A11067	93 (1:11-cv-08539)	09/03/2014	Order
A11068 - A11075	84 (1:11-cv-08539)	07/28/2014	Report and Recommendation
A11076 - A11089	N/A	12/09/2013	PowerPoint Presentation Used by Plaintiff at Hearing on December 9, 2013
A11090 - A11107	N/A	02/28/2013	Non-party MediaTek USA Inc.'s Objections and Responses to the "Subpoena to Produce Documents, Information, or Objects to Permit Inspection of Premises in a Civil Action" Dated February 14, 2013 and Issued by Oplus Technologies, Ltd.
A11108 -	N/A	02/28/2013	Non-party Qualcomm Incorporated's

A11141			Responses and Objections to Oplus Technologies, Ltd.'s Subpoena to Produce Documents, Etc. and Subpoena to Testify at Deposition in a Civil Action
A11142 - A11153	N/A	03/01/2013	Non-party Witness STMicroelectronics, Inc.'s Responses and Objections to Plaintiff's Subpoenas for Production of Documents and Testimony
A11154 - A11164	364 (6:11-cv-00421)	08/06/2014	Order and Opinion Denying Attorney's Fees
A11165 - A11183	62 (1:11-cv-08539)	05/16/2014	Amended Memorandum of Points and Authorities in Support of Defendant VIZIO, Inc.'s Motion for Attorneys' Fees and Expenses Pursuant to 35 U.S.C. § 285, 28 U.S.C. § 1927, and the Court's Inherent Power
A11184 - A11299	62-1 (1:11-cv-08539)	05/16/2014	Amended Declaration of Adrian M. Pruetz in Support of Defendant VIZIO, Inc.'s Motion for Attorneys' Fees and Expenses Pursuant to 35 U.S.C. § 285, 28 U.S.C. § 1927, and the Court's Inherent Power
A11300 - A11301	98 (1:11-cv-07539)	09/10/2014	Order Denying Oplus Technologies, Ltd.'s Motion for Attorneys' Fees and Expenses
A11302 - A11305	84 (1:10-cv-04298)	12/07/2012	Order Granting Defendant's Motion for Attorneys' Fees and Expenses in <i>Illinois Comp. Res. v. Best Buy Stores, L.P.</i> , Case No. 1:10-cv-04298, Dkt. 84 (N.D. Ill. Dec. 7, 2012)
A11306 - A11327	340 (9:09-cv-81046)	08/31/2012	Order Granting Motion for Fees and Costs, Requesting Submission of Materials for In Camera Review and Granting Motion to Strike in <i>Innovative Biometric Tech., LLC v. Toshiba Am. Info. Sys., Inc.</i> , Case No. 9:09-cv-81046 (S.D. Fla. Aug. 31, 2012)

CONFIDENTIAL MATERIAL OMITTED

The material omitted in Appendix Page Range A9566-9575 includes testimony from a VIZIO witness describing VIZIO's business strategy.

The material omitted in Appendix Page Range A7539-7594 describes confidential details of Oplus Technologies, Ltd.'s business, including the purchase price of the patent portfolio including the patents that were at issue in this case.

The material omitted in Appendix Page Range A7597-8049 includes VIZIO counsel's confidential invoices to VIZIO for the fees it incurred in this action.

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UNITED STATES DISTRICT COURT
CENTRAL DISTRICT OF CALIFORNIA
WESTERN DIVISION

OPLUS TECHNOLOGIES, LTD.,

Plaintiff,

v.

SEARS HOLDINGS CORPORATION;
VIZIO, INC.,

Defendants.

CASE NO.: CV12- 5707 MRP (Ex)

Hon. Judge Mariana R. Pfaelzer

**DEFENDANT VIZIO, INC.'S
NOTICE OF MOTION AND
MOTION FOR ATTORNEYS' FEES
AND EXPERT WITNESS FEES
PURSUANT TO 35 U.S.C. § 285, 28
U.S.C. § 1927, AND THE COURT'S
INHERENT POWER**

DATE: December 2, 2013

TIME: 11:00 am

PLACE: Courtroom 12

NOTICE OF MOTION AND MOTION FOR ATTORNEY FEES AND COSTS

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UNITED STATES DISTRICT COURT
CENTRAL DISTRICT OF CALIFORNIA
WESTERN DIVISION

OPLUS TECHNOLOGIES, LTD.,

Plaintiff,

v.

SEARS HOLDINGS CORPORATION;
VIZIO, INC.,

Defendants.

CASE NO.: CV12- 5707 MRP (Ex)

Hon. Judge Mariana R. Pfaelzer

**DEFENDANT VIZIO, INC.'S
NOTICE OF MOTION AND
MOTION FOR ATTORNEYS' FEES
AND EXPERT WITNESS FEES
PURSUANT TO 35 U.S.C. § 285, 28
U.S.C. § 1927, AND THE COURT'S
INHERENT POWER**

DATE: December 2, 2013

TIME: 11:00 am

PLACE: Courtroom 12

**NOTICE OF MOTION AND MOTION FOR ATTORNEYS' FEES AND
EXPERT WITNESS FEES PURSUANT TO 35 U.S.C. § 285, 28 U.S.C. § 1927,
AND THE COURT'S INHERENT POWER**

PLEASE TAKE NOTICE that at 11:00 a.m. on December 2, 2013, or as soon thereafter as counsel may be heard, Defendant VIZIO, Inc. ("VIZIO") will, and hereby does, move this Court, the Honorable Mariana R. Pfaelzer presiding, for its attorneys' fees and expert witness fees pursuant to 35 U.S.C. § 285, 28 U.S.C. § 1927, and the Court's inherent power.

This motion is based upon this Notice of Motion and Motion, the accompanying Memorandum of Points and Authorities, Declaration of Charles C. Koole in support of this Motion and exhibits thereto, all pleadings and papers on file in this action, and upon such other matters as may be presented to the Court at the time of the hearing.

In accordance with the Court's standing order and Civil Local Rules, VIZIO counsel certifies that they met and conferred with Oplus Technologies, Ltd.'s ("Oplus") counsel prior to filing this Motion. On October 24, 2013, VIZIO counsel met and conferred telephonically with Oplus counsel to discuss the grounds for this Motion.

Dated: October 31, 2013

Respectfully submitted,

By: /s/ Adrian M. Pruetz
Adrian M. Pruetz
Charles C. Koole
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HOWARD AVCHEN & SHAPIRO LLP
Enoch H. Liang
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UNITED STATES DISTRICT COURT
CENTRAL DISTRICT OF CALIFORNIA
WESTERN DIVISION

OPLUS TECHNOLOGIES, LTD.,

Plaintiff,

v.

SEARS HOLDINGS CORPORATION;
VIZIO, INC.,

Defendants.



CASE NO.: CV12-5707 MRP (Ex)

Hon. Judge Mariana R. Pfaelzer

**MEMORANDUM OF POINTS AND
AUTHORITIES IN SUPPORT OF
DEFENDANT VIZIO, INC.'S
MOTION FOR ATTORNEYS' FEES
AND EXPERT WITNESS FEES
PURSUANT TO 35 U.S.C. § 285, 28
U.S.C. § 1927, AND THE COURT'S
INHERENT POWER**

[Confidential Version]

DATE: December 2, 2013

TIME: 11:00 a.m.

PLACE: Courtroom 12

MEMORANDUM OF POINTS AND AUTHORITIES IN SUPPORT OF VIZIO'S MOTION FOR ATTORNEYS'
AND EXPERT WITNESS FEES

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21 *VIZIO, Inc.*

UNITED STATES DISTRICT COURT
CENTRAL DISTRICT OF CALIFORNIA
WESTERN DIVISION

22 OPLUS TECHNOLOGIES, LTD.,

23 Plaintiff,

24 v.

25 SEARS HOLDINGS CORPORATION;
26 VIZIO, INC.,

27 Defendants.



CASE NO.: CV12- 5707 MRP (Ex)

Hon. Judge Mariana R. Pfaelzer

**DECLARATION OF CHARLES C.
KOOLE IN SUPPORT OF
DEFENDANT VIZIO, INC.'S
MOTION FOR ATTORNEYS' FEES
AND EXPERT WITNESS FEES
PURSUANT TO 35 U.S.C. § 285, 28
U.S.C. § 1927, AND THE COURT'S
INHERENT POWER**

[Filed confidentially under seal]

DATE: December 2, 2013

TIME: 11:00 a.m.

PLACE: Courtroom 12

DECLARATION OF CHARLES C. KOOLE
CONFIDENTIAL PURSUANT TO STIPULATED PROTECTIVE ORDER

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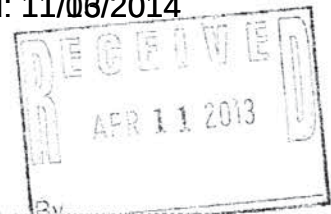
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IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION

OPLUS TECHNOLOGIES, LTD.,

Plaintiff,

v.

SEARS HOLDINGS CORPORATION and
VIZIO, INC.

Defendants.

Civil Action No. 1:11-cv-8539

Honorable Robert M. Dow, Jr.

Magistrate Judge Michael T. Mason

JURY TRIAL DEMANDED

**PLAINTIFF OPLUS TECHNOLOGIES, LTD.'S RESPONSE
TO DEFENDANT VIZIO'S MOTION TO SEVER AND
TRANSFER CLAIMS AGAINST VIZIO AND STAY CLAIMS AGAINST SEARS**

Vizio's motion to transfer for the convenience of witnesses in the interests of judicial economy makes no sense. Vizio imports televisions into the United States that are made in China. It has no manufacturing facilities in the United States and no involvement in the design of the products that it sells. Incredibly, Vizio openly admitted in another case in this district that it does not design, engineer or manufacture its televisions and that the technology it uses is not even known by its technical personnel:

MR. ZARIAN [Vizio's lawyer]: ...*Vizio doesn't design, engineer or manufacture anything to do with these technologies.* What Vizio does is sell products that are supplied to it by others.

THE COURT: Well, that doesn't mean you can't infringe a patent.

MR. ZARIAN: It means we don't know until we're told and something is identified in the way of a specific part or --

THE COURT: What do you mean you don't know? I mean, your engineers know what technology your products employ regardless of who manufactures them. Correct?

MR. ZARIAN: *No. No, your Honor they don't, and --*

* * * *

MR. ZARIAN: ... *Some of these technologies aren't even known to our real people to the extent we have technical people that understand them.*

Others, they may have heard of it, but the decision of what to buy and what to market in Wal-Mart or Costco or whatever it is by Vizio doesn't go down to the level of a chip or a board or particular software that runs a circuit inside the television. These things are supplied by the companies in their entirety. And it is those companies that would know about the engineering.

* * * *

THE COURT: You're saying that you don't know enough about your products or maybe his patents

MR. ZARIAN: Right.

IP Innovation et al. v. Vizio, et al., Civ. Action No. 08 C 393 (N.D. Ill. Oct. 29, 2009) Hearing Transcript at 16-17 and 32 (Exh. A, emphasis added). Vizio’s representation that it “develops the accused televisions [in Irvine, California],” therefore, is simply wrong (Br. at 7-8). California really has no involvement in the technical issues before the Court.

Vizio's lack of third party witnesses in California is further underscored by the *IP Innovation* litigation, which involved the same infringing television sets using DCDi, MDDi, and HQV resolution technologies as are infringing in the present case. (Exh. A at 16). Yet Vizio never identified any California third party witness regarding the structure or operation of Vizio's products in that case. (Vizio's First Supplemental Initial Disclosures, Exh. B). In fact, Mr. Lowe (as Vizio's 30(b)(6) designee) was the only California witness ever deposed about the accused televisions with DCDi, MDDi and HQV during the three years of the *IP Innovation* lawsuit. And Mr. Lowe's representation to the Court that "it would be very difficult" to travel to Chicago "due to family and work commitments" must be taken with a grain of salt. (Exh. A to Vizio's brief). Through Twitter, Mr. Lowe is telling the rest of the world about his travels on behalf of Vizio at various industry shows in cities across the United States, including New York and Las Vegas, among others. (<https://twitter.com/#!/KenVIZIO>, Exh. C). Travel outside of the

Northern District of California plainly does not constitute an undue burden on Mr. Lowe or Vizio. And Vizio's allegations about the need for third party testimony from chip makers is belied by its conduct in the *IP Innovations* case as well as the unspecified identification of the need for such testimony. *Mitkal v. UPS*, 2009 U.S. Dist. LEXIS 112972 at *5-6 (N.D. Ill. 2009). As this Court noted in *Mitkal*, "a movant cannot meet its burden with only vague statements about the inconvenience imposed by the litigation on non-party witnesses[.]" *Id.* (citing *Federated Dept. Stores, Inc. v. U.S. Bank Nat'l Assoc.*, 2001 U.S. Dist. LEXIS 6209, 2001 WL 503039, *4 (N.D. Ill. May 11, 2001)); see also *Am. Family Ins. ex rel. Suddarth v. Wal-Mart Stores, Inc.*, 2003 U.S. Dist. LEXIS 6412, 2003 WL 1895390, *2 (N.D. Ill. Apr. 17, 2003)(defendant must show that the testimony of the particular witnesses is necessary to its case). Vizio has failed to meet its burden on this element.

Again, the evidence from the *IP Innovation* litigation confirmed that Vizio has no manufacturing facilities anywhere because it does not manufacture anything. No products are made in the United States. Suppliers (all of whom are based in China and Taiwan) decide what designs to use and how to use them. An example of these Chinese manufacturers is AmTran Technology, a Taiwanese ODM (original design and manufacturing) company which designs and manufactures finished televisions which it then sells to Vizio. (<http://en.wikipedia.org/wiki/Vizio>, Exh. D). Vizio doesn't select or approve the video processing circuitry, for example, which is used to practice the patents at issue. (Exh. A, at 16-17). Indeed, most of Vizio's infringing televisions use infringing MDDi image enhancement circuitry components provided by MediaTek, Inc., another Taiwanese based manufacturer. (http://www.mediatek.com/en/Products/product_list.php?cata_sn=2&catal_sn=2, (Exh. E). To suggest, therefore, that California has some special relationship to the relevant facts is simply false.

**Vizio's Cited Cases Are Inapplicable to the Chinese
Designed and Manufactured Televisions in the Present Case**

The cases cited by Vizio all have to do with manufacturers. But, Vizio is not a manufacturer. It has no knowledge or involvement in design and manufacturing. Rather, it is (like Sears) just a sales agent for the Chinese manufacturers. In addition, the cases cited by Vizio to support a stay are not applicable here. In *Spread Spectrum*, a stay was granted for Kodak's customers because the customers "do not even understand how the product software actually works" and, hence, will not be helpful to determining whether or not there is infringement. 2010 U.S. Dist. LEXIS 90549 at *9-*10. Here, it is Vizio that has no understanding of how its products were designed, developed or work. It has no greater knowledge than Sears. In *Card Activation Technologies*, the named defendants did not carry out all of the method steps required to infringe. 2009 U.S. Dist. LEXIS 83107 at *13. Thus, a stay made sense. Here, Sears itself carries out each step needed to infringe and its acts stand independently of Vizio, especially with respect to its other suppliers like JVC, Funai and D&M Holdings. *Thermasure* also is unlike this case, in that the transferred case would resolve all issues of liability as to the customer. 2010 U.S. Dist. LEXIS 136262 at *34. Here, Sears' liability for sales of JVC, Funai and D&M televisions and other video products will not be resolved through the Vizio case.

In short, the Sears case should not be stayed. And judicial economy is not advanced by having two cases go forward in different districts. As this Court noted recently, *Baye v. HBI Branded Apparel Enterprises LLC et al.*, one of the factors typically considered in the "interest of justice" analysis is whether there are two cases involving the same issues pending in two different jurisdictions. *Baye v. HBI Branded Apparel Enterprises LLC et al.*, Civ. Action No. 1:11-cv-04941, slip op. at 1, 2011 U.S. Dist. LEXIS 145450 at *2-*3 (N.D. Ill., Dec. 19,

BEFORE THE UNITED STATES
JUDICIAL PANEL ON
MULTIDISTRICT LITIGATION

In re OPLUS TECHNOLOGIES, LTD.
PATENT LITIGATION

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MDL No.: 2400

**OPLUS' REPLY TO RESPONSE TO MOTION FOR TRANSFER AND
CENTRALIZATION OF ACTIONS PURSUANT TO 28 U.S.C. § 1407**

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design, engineer or manufacture anything to do with these [accused] technologies.” (Oplus Tech. v. Vizio, 1:11-cv-08539, D.I. 41 at 1, Exh. F). In fact, Vizio imports its accused products primarily from China, working with their Taiwanese based minority shareholder (AmTran), and using integrated circuits from another Taiwanese manufacturer (Mediatek) in its accused products which practice the claimed inventions. Plainly, none of the discovery to be had about the technical details of such accused products can be obtained in California.

3) It is difficult to believe that these defendants will each select different claim terms for construction or take differing positions on the validity of the patents (Def. Brf. at 3), making it highly likely that the defendants will adopt common positions for claim construction or validity. Regardless, the supposed advantage of having claim construction proceed in California versus Illinois is illusory. Claim construction is an issue of law, and thus the location of any witnesses regarding the technical details of the accused products is irrelevant to any Markman hearing. Moreover, the schedule for the Funai case in Chicago is already in place and the conclusion of the Chicago Markman briefing is only eight weeks after the recently scheduled Markman hearing in California. If anything, the Chicago schedule that is already in place is better situated than the California case to give sufficient time for Oplus and all of the defendants to exchange final infringement contentions prior to beginning the process of briefing claim construction. In any event, no exchange of claim construction terms, much less Markman briefing has begun in any of the cases. Thus, none of the cases have moved so far ahead as to negate any benefit from centralization.

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UNITED STATES DISTRICT COURT
CENTRAL DISTRICT OF CALIFORNIA
WESTERN DIVISION

OPLUS TECHNOLOGIES, LTD.,

Plaintiff,

v.

SEARS HOLDINGS CORPORATION,
VIZIO, INC.,

Defendants.

CASE NO.: CV12-5707 MRP (E)

Hon. Mariana R. Pfaelzer

**DEFENDANT VIZIO INC.'S
SUPPLEMENTAL OBJECTIONS
AND RESPONSES TO PLAINTIFF
OPLUS TECHNOLOGIES, LTD.'S
AMENDED INTERROGATORIES
(NOS. 1, 4, 7, 11, AND 12)**

DEFENDANT VIZIO INC.'S SUPPLEMENTAL OBJECTIONS AND RESPONSES TO PLAINTIFF OPLUS
TECHNOLOGIES, LTD.'S AMENDED INTERROGATORIES

10. VIZIO's responses are based upon information presently known to VIZIO. As VIZIO has not yet completed its investigation of the facts relating to this action, and has not yet reviewed all materials relating to this action, interviewed all witnesses in this action, and has not yet completed its preparation for trial, VIZIO reserves the right to amend and/or supplement its responses to these Interrogatories if and when additional facts or documents are discovered. Additionally, because VIZIO's responses are based on facts and documents that VIZIO has indentified to date, they do not preclude VIZIO from later relying on facts or documents discovered or generated pursuant to subsequent investigation or discovery. VIZIO's partial response to any Interrogatory is not to be construed as a waiver of any of its rights to object to any other Interrogatory.

SPECIFIC RESPONSES AND OBJECTIONS

AMENDED INTERROGATORY NO. 1:

Identify all Relevant Products by product number, trade name, and/or other designation.

SUPPLEMENTAL RESPONSE TO AMENDED INTERROGATORY NO. 1:

VIZIO incorporates by reference each of the foregoing General Objections.

VIZIO further objects to this Interrogatory on the grounds that this Interrogatory seeks information that is not relevant to this action or likely to lead to the discovery of admissible evidence. VIZIO further objects to the extent this Interrogatory seeks information that is publicly available, and hence equally available to all parties to this litigation.

Subject to and without waiver of the foregoing general and specific objections, VIZIO responds as follows:

VIZIO agreed to produce non-privileged documents responsive to this request to the extent they exist and have not been produced, pursuant to Fed. R. Civ. P. 33(d). Pursuant to the Court's April 3, 2013 Order, VIZIO is not obligated to provide discovery pertaining to "Relevant Products" as defined by Oplus unless and until it

1 provides adequate infringement contentions. As to the specifically identified
2 television products identified in Oplus' August 9, 2012 Infringement Contentions,
3 VIZIO has conducted a reasonable search and determined that none of them were on
4 sale after the filing of Oplus' Complaint. Thus, no non-privileged, relevant
5 documents responsive to this Interrogatory concerning the televisions specifically
6 identified by Oplus in its Infringement Contentions exist. VIZIO products that were
7 on sale prior to Oplus' filing of its Complaint on December 1, 2011 are irrelevant to
8 this case, as detailed below, as VIZIO had no notice of the asserted patents prior to
9 the filing of Oplus' Complaint on December 1, 2011.

10 Oplus has no viable claim against VIZIO for direct infringement and states
11 none. In its August 9, 2012 Infringement Contentions, Oplus asserted that "Vizio has
12 (a) directly infringed and continues to directly infringe claims 7, 8, 9, 14 and 15 of the
13 '842 patent, claims 56, 57, 58, 59, and 62 of the '840 patent within the meaning of 35
14 U.S.C. §271(a) . . ." However, Oplus has not alleged any act by VIZIO that could
15 constitute direct infringement.

16 Instead, each of the claims asserted by Oplus is a method claim. A method
17 claim cannot be directly infringed through the selling, offering to sell, importing or
18 making of a product merely *capable* of practicing a method. *See Ricoh Co., Ltd. v.*
19 *Quanta Computer Inc.*, 550 F. 3d 1325, 1335 (Fed. Cir. 2008) ("Accordingly, we hold
20 that a party that sells or offers to sell software containing instructions to perform a
21 patented method does not infringe the patent under § 271(a)."); *NTP, Inc. v. Research*
22 *In Motion, Ltd.*, 418 F.3d 1282, 1320-21 (Fed. Cir. 2005) ("Thus, the legislative
23 history of section 271(a) indicates Congress's understanding that method claims could
24 only be directly infringed by use The legislative history cited with respect to the
25 sell and offer to sell provisions indicates that Congress did not consider the 'import'
26 prong of section 271(a) to apply to method claims."); *Joy Techs., Inc. v. Flakt, Inc.*, 6
27 F.3d 770, 773 (Fed. Cir. 1993) ("The law is unequivocal that the sale of equipment to
28 perform a process is not a sale of the process within the meaning of section 271(a).");

prong of section 271(a) to apply to method claims.”); *Joy Techs., Inc. v. Flakt, Inc.*, 6 F.3d 770, 773 (Fed. Cir. 1993) (“The law is unequivocal that the sale of equipment to perform a process is not a sale of the process within the meaning of section 271(a).”); *id.* at 774-75 (“[A] method claim is not directly infringed by the sale of an apparatus even though it is capable of performing only the patented method. The sale of the apparatus is not a sale of the method. A method claim is directly infringed only by one practicing the patented method.”).

As VIZIO only sells products that Oplus alleges are capable of being used to practice the methods of the asserted patents, VIZIO cannot directly infringe the asserted claims of the asserted patents.

In its August 9, 2012 Infringement Contentions, Oplus also asserted that “Vizio has . . . (b) indirectly infringed and continues to indirectly infringe the same asserted claims of the patents-in-suit under 35 U.S.C. §271(b) by knowingly and actively inducing infringement by others of those claims; and (c) further indirectly infringed and continues to directly infringe the same claims of the patents-in-suit under 35 U.S.C. §271(c) by contributing to the infringement of others.”

Products sold prior to the filing of Oplus’ Complaint are irrelevant to Oplus’ indirect infringement claims, as Oplus has not established any notice of the asserted patents prior to the filing of its Complaint. And VIZIO had no such notice. Both contributory infringement and inducement of infringement require, at a minimum, actual knowledge of the patents that are allegedly infringed. *Synqor, Inc. v. Artesyn Techs., Inc.*, 709 F.3d 1365 (Fed. Cir. 2013) (citing *Global-Tech Appliances, Inc. v. SEB S.A.*, 131 S. Ct. 2060, 2068, 179 L. Ed. 2d 1167 (2011)) (“Liability for induced or contributory infringement under § 271(b) or (c) requires ‘knowledge that the induced acts constitute patent infringement.’ This includes, in part, actual ‘knowledge of the existence of the patent that is infringed.’”).

AMENDED INTERROGATORY NOS. 11 AND 12:

(11) State and describe in detail the design and development history of each of

the Relevant Products from 2006 to the present including the date that design/development commenced and the identity of all versions of the Relevant Products. (12) Identify the person(s) most knowledgeable about the subject matter of Defendant's response to this Interrogatory.

SUPPLEMENTAL RESPONSE TO AMENDED INTERROGATORY NO. 11 AND 12:

VIZIO incorporates by reference each of the foregoing General Objections.

VIZIO further objects to Amended Interrogatory No. 11 as improperly compound as it calls for information on at least three distinct subjects:

- (1) Description of the design and development history of each of the alleged Relevant Products;
- (2) The dates on which the design and/or development of each Relevant Product commenced; and
- (3) The identity of all versions of the alleged Relevant Products;

Each of these distinct subjects includes at least fourteen additional discrete subparts because they seek information about all of the accused products and Oplus has accused at least fourteen different VIZIO products. *See, e.g., Collaboration Properties, Inc. v. Polycom, Inc.*, 224 F.R.D. 473, 474-75 (N.D. Cal. 2004) (each interrogatory which sought information about all 26 accused products has 26 discrete subparts). To the extent the number of interrogatories served by Oplus, including each of the discrete subparts contained in these Interrogatories, exceed 25 as permitted by Federal Rule of Civil Procedure 33(a)(1), such interrogatories should be stricken absent a court order pursuant to Federal Rule of Civil Procedure 26(b)(2).

VIZIO further objects to these Interrogatories as vague and ambiguous to the extent the phrases "design and development history," and "versions" are not defined or understood.

VIZIO further objects to the extent these Interrogatories seek information that is not in VIZIO's possession, custody, or control. *See, e.g., Oplus' July 21, 2012*

1 Judicial Panel on Multidistrict Litigation Reply Brief at 3 (“Plainly, none of the
2 discovery to be had about the technical details of such accused products can be
3 obtained in California.”).

4 Subject to and without waiver of the foregoing general and specific objections,
5 VIZIO responds as follows:

6 VIZIO does not design or manufacture the accused products. For purposes of
7 this case, VIZIO believes that the parties who supply these products and their
8 components have the most knowledge regarding their design and development.
9 Specifically, the companies that developed and/or currently own the rights to the three
10 proprietary technologies that Oplus has accused of infringement, *i.e.*, Silicon Optix
11 HQV technology, Faroudja DCDi technology, and MediaTek motion adaptive
12 deinterlacing technology (*see* Oplus’ Infringement Contentions at 2), have the most
13 knowledge regarding the design and development of these technologies. Kenneth
14 Lowe, Vice President of VIZIO, has knowledge regarding VIZIO’s products,
15 including the development and features of VIZIO televisions.

16 VIZIO agreed to produce non-privileged documents responsive to this request
17 to the extent they exist and have not been produced, pursuant to Fed. R. Civ. P. 33(d).
18 Pursuant to the Court’s April 3, 2013 Order, VIZIO is not obligated to provide
19 discovery pertaining to “Relevant Products” as defined by Oplus unless and until it
20 provides adequate infringement contentions. As to the specifically identified
21 television products identified in Oplus’ August 9, 2012 Infringement Contentions,
22 VIZIO has conducted a reasonable search and determined that none of them were on
23 sale after the filing of Oplus’ Complaint. Thus, no non-privileged, relevant
24 documents responsive to this Interrogatory concerning the televisions specifically
25 identified by Oplus in its Infringement Contentions exist. VIZIO products that were
26 on sale prior to Oplus’ filing of its Complaint on December 1, 2011 are irrelevant to
27 this case, as detailed below, as VIZIO had no notice of the asserted patents prior to
28 the filing of Oplus’ Complaint on December 1, 2011.

1 Dated: April 25, 2013

Respectfully submitted,

2 By: /s/ Charles C. Koole

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1

Kenneth Lowe May 10, 2013

UNITED STATES DISTRICT COURT
CENTRAL DISTRICT OF CALIFORNIA
WESTERN DIVISION

OPLUS TECHNOLOGIES, LTD.,)
)
Plaintiff,)
)
vs.) Case No. CV12-5707 MRP(E)
)
SEARS HOLDINGS CORPORATION)
and VIZIO, INC.,)
)
Defendants.)
)

CONFIDENTIAL - ATTORNEYS' EYES ONLY

VIDEOTAPED 30(B)(6) DEPOSITION of VIZIO,
INC. (KENNETH ROY LOWE), taken on behalf of
Oplus Technologies, Ltd., at 18000 Von Karman
Avenue, Irvine, California, commencing at
9:32 a.m., Friday, May 10, 2013, before
Michelle Hutton, C.S.R. 7322.

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From: Hintz, John M. [John.Hintz@haynesboone.com]
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To: dferri@nshn.com; Adrian M. Pruetz; Charles C. Koole; enoch.liang@ltlawattorneys.com; Steven R. Hansen-LTL
Subject: Oplus Technologies' Subpoena of MediaTek USA Inc. -- DRAFT Confidentiality and Non-Disclosure Agreement
Attachments: MediaTek USA_s Confidentiality and Non-Disclosure Agreement re Oplus_210451(1).docx

It is my understanding that a protective order has not been entered in the underlying action, Oplus Technologies, Ltd. V. Sears Holdings Corporation et al., Case No. 2:12-cv-5707-MRP-E (C.D. Cal.), the action from which MediaTek USA Inc. was served with subpoenas. As explained in MediaTek USA Inc.'s objections and responses to Oplus Technologies' document subpoena, although MediaTek USA Inc. does not believe that it is in possession, custody, or control of documents responsive to Oplus Technologies' subpoena, MediaTek Inc. is prepared to produce technical documents and computer code voluntarily on the condition that (1) a "Confidentiality and Non-Disclosure Agreement" is entered into by all parties who wish to receive MediaTek Inc.'s documents and code in order to protect that information and (2) that no deposition be taken of MediaTek USA Inc.

As to the first condition, I attach a draft "Confidentiality and Non-Disclosure Agreement" for your consideration. Please let me know if you have any comments or suggested changes to this draft.

haynesboone

John Hintz

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IN THE UNITED STATES DISTRICT COURT
FOR THE CENTRAL DISTRICT OF CALIFORNIA
WESTERN DIVISION

OPLUS TECHNOLOGIES, LTD.,

Plaintiff,

v.

SEARS HOLDINGS CORPORATION
and VIZIO, INC.,

Defendants.

Case No. CV12-5707 MRP (E)

*Assigned to the Honorable Mariana R.
Pfaelzer*

**EXPERT REPORT AND
DECLARATION OF D. MICHAEL
HOLMES**

EXHIBIT B

TO

**EXPERT REPORT AND
DECLARATION OF D. MICHAEL
HOLMES**

Infringement Chart
U.S. Patent No. 6,239,842
Vizio Televisions or Displays with HQV, Including VP505XVT, VP504F, and VP605F

Vizio (or its customers or retailers) have infringed claims 7, 8, 9, 14, 15 of U.S. Patent No. 6,239,842 (“the ‘842 patent”) within the meaning of 35 U.S.C. 271(a) by making, using, selling, offering for sale, or importing in to the United States televisions or displays incorporating HQV technology, including at least Vizio’s VP505XVT, VP504F, and VP605F. (See **Exhibits 2 and 6**). As described, Vizio also induces and contributes to infringement within the meaning of 35 U.S.C. 271(b) and 35 U.S.C. 271(c). See manuals for Vizio TVs, e.g. VP505XVT user manual pages, (**Exhibit 1**); VP504F user manual pages (**Exhibit 7**). This claim chart is meant to be exemplary of infringement by any Vizio television incorporating HQV technology.

The exhibits referenced herein were previously provided to Vizio, as numbered, as part of Oplus’ initial service of Infringement Contentions.

Claim	Infringement by Vizio Televisions Incorporating HQV
Claim 7 A method for de-interlacing an interlaced video format, the method comprising the steps of:	<p>Vizio televisions with HQV, including Vizio’s VP505XVT televisions, make use of HQV technology to give them an advantage in video quality and in particular an advantage in deinterlacing and displaying interlaced video signals as a high definition signal.</p> <p>From the Press Release accessed on 11-27-2011 and August 2, 2012 at http://www.noydcom.com/press_release/vizio/xvt/vizio_xvt_PR_FNL.pdf (Exhibit 2):</p> <p>VP505XVT FULL 1080p Plasma with SILICON OPTIX HQV (Hollywood Quality Video) Processing</p> <p>VIZIO jumps deeper into Full High-Definition 1080p plasma performance with a bang to capture the imagination of even the most discerning consumers with the 50” VIZIO VP505XVT. Plasma TVs are the preferred choice for superior color, higher contrast ratios, longer panel life and fast refresh rates.</p> <p>To ensure smooth, crisp, clean, and more vibrant images, VIZIO integrated the Silicon Optix’s REON HQV processing into the VP505XVT. This advanced technology brings out even the finest details with both Standard Definition (SD) and High Definition (HD) sources. Rendered colors are more natural, showing true color tones as they were intended. Moreover, Silicon Optix HQV’s advanced noise reduction removes noise and artifacts caused by signal compression from cable and satellite providers. Since the HQV’s REON chip can process two full channels of HD or SD channels, this allows users to achieve full resolution with picture-in-picture images.</p>

Infringement Chart
U.S. Patent No. 6,239,842
Vizio Televisions or Displays with HQV, Including VP505XVT, VP504F, and VP605F

	<p>IDT HQV approach (pixel-based motion adaptive)</p> <p>HQV processing represents the most advanced de-interlacing technique available: a true pixel-based motion-adaptive approach. With HQV processing, motion is identified at the pixel level rather than the frame level. While it is mathematically impossible to avoid discarding pixels in motion during de-interlacing, HQV processing is careful to discard only the pixels that would cause combing artifacts. Everything else is displayed with full resolution.</p> <p>Pixel-based motion-adaptive de-interlacing avoids artifacts in moving objects and preserves full resolution of non-moving portions of the screen even if neighboring pixels are in motion.</p>
(a) receiving the interlaced video format feature a sequence of fields of pixels to be de-interlaced;	<p>The Vizio televisions receive an interlaced format video signal which is made up of a sequence of interlaced fields of pixels. HQV technology includes de-interlacing video, and states that 4 fields are used “to implement a true per-pixel motion-adaptive deinterlacer.” The 4 fields being part of the sequence of fields of the interlaced format video signal. http://www.hqv.com/index.cfm?page=tech.de-interlacing (Exhibit 4):</p>
(b) evaluating logical operations of linear combinations of values selected from the group consisting of averages of known values of spatial pixels, averages of said known values of temporal pixels, standard deviations of said known values of said spatial pixels, standard deviations of said known values of said temporal pixels, minimums of said standard deviations of said known values of said spatial pixels, absolute values	<p>This element requires that the missing pixels, that is the spatial pixels which are missing from an interlaced video field, are identified through averaging and/or other mathematical operations, creating a multitude of various potential values to calculate off of using any applicable logical operation. This allows a great level of flexibility on calculating ideal formulas and values to utilize to de-interlace the video correcting for common errors that will result from a blind application of the temporal field’s pixel values to the current field’s missing pixels. For example, the values of the missing pixels will be determined using the values of existing pixels which are taken from the image which the missing pixels are part of, rather than using existing pixels taken from a different image which would cause artifacts in the deinterlaced image.</p> <p>Vizio televisions using HQV technology utilize HQV’s pixel-based motion adaptive de-interlacing technique to try to correct these sorts of common errors as well. HQV notes that its pixel-based motion adaptive process for de-interlacing discards only pixels that would cause</p>

Infringement Chart
U.S. Patent No. 6,239,842
Vizio Televisions or Displays with HQV, Including VP505XVT, VP504F, and VP605F

<p>of differences between said averages of said known values of said temporal pixels and said known values of said spatial pixels, and a plurality of constants, said logical operations selected from the group consisting of greater than, greater than or equal to, less than, less than or equal to, 'and', 'or', and 'xor'; and</p>	<p>artifacts by analyzing movement at the pixel level across temporally related fields to measure the movement. In other words, HQV's processes must take a multitude of potential values to be used to fill in for the missing current pixels and perform logical operations upon them to determine the best fit value in light of the motion present.</p> <p>The logical operations used are selected from those Boolean Logic operations greater than, greater than or equal to, less than, less than or equal to, 'and', 'or', and 'xor' which operations are performed on the selected enumerated linear combinations of values. The Boolean Logic operations including at least 'and' and 'or' are those which are always utilized in digital logic operations in the digital HQV ICs utilized by Vizio and the enumerated linear combinations of values are those which are utilized by those digital HQV ICs to determine spatial and temporal similarities which are always utilized to determine spatial detail and motion in interlaced video images.</p> <p>As stated by Jed Deame, a co-founder and General Manager of Teranex/SiliconOptix:</p> <p>HQV processing represents the most advanced de-interlacing technique available: a true pixel-based motion-adaptive approach. With HQV processing, motion is identified at the pixel level rather than the frame level. While it is mathematically impossible to avoid discarding pixels in motion during de-interlacing, HQV processing is careful to discard only the pixels that would cause combing artifacts. Everything else is displayed with full resolution.</p>
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EXHIBIT C

TO

**EXPERT REPORT AND
DECLARATION OF D. MICHAEL
HOLMES**

Infringement Chart
U.S. Patent No. 7,271,840
Vizio Televisions or Displays with Faroudja DCDi, Including P50HDTV10A, P50HDM, VM60P, GV46L, RP56, L13 and JV50P

Vizio (or its customers or retailers) have infringed claims 56, 57, 58, 59, and 62 of U.S. Patent No. 7,721,840 (“the ‘840 patent”) within the meaning of 35 U.S.C. 271(a) by making, using, selling, offering for sale, or importing into the United States televisions or displays incorporating Faroudja DCDi technology, including at least Vizio’s P50HDTV10A, P50HDM, VM60P, GV46L, RP56, L13 and JV50P. (See Exhibits 14, 17, 18, 19, 20, 21, 23.) As described, Vizio also induces and contributes to infringement within the meaning of 35 U.S.C. 271(b) and 35 U.S.C. 271(c). See manuals for Vizio TVs, e.g. P50HDTV10A user manual (**Exhibit 14**). This chart is meant to be exemplary of infringement by any Vizio television or display incorporating Faroudja DCDi technology. The exhibits referenced herein were previously provided to Vizio, as numbered, as part of Oplus’ initial service of Infringement Contentions.

Claim Element	Vizio Televisions or Displays with Faroudja DCDi, Including P50HDTV10A, P50HDM, VM60P, GV46L, RP56, L13 and JV50P
56. A method determining entropy of a pixel of a real time streaming digital video image signal,	

EXHIBIT D

TO

**EXPERT REPORT AND
DECLARATION OF D. MICHAEL
HOLMES**

Infringement Chart
U.S. Patent No. 6,239,842
Vizio Televisions or Displays with MediaTek MDDi Motion Adaptive Deinterlacing technology

Vizio (or its customers or retailers) have infringed claims 7, 8, 9, 14, and 15 of U.S. Patent No. 6,239,842 (“the ‘842 patent”) within the meaning of 35 U.S.C. 271(a) by making, using, selling, offering for sale, or importing in to the United States televisions or displays incorporating MediaTek MDDi Motion Adaptive Deinterlacing technology, including at least Vizio’s L42HDTV10A, GV42L, VW46L FHDTV10A, L37HDTV, P42HDTV10A, VX32L, VW32L, and VX37L televisions (e.g. MediaTek MT535X, MT538X and MT820X video signal processing chips with MDDi). As described, Vizio also induces and contributes to infringement within the meaning of 35 U.S.C. 271(b) and 35 U.S.C. 271(c). On information and belief, many more Vizio televisions incorporate MediaTek MDDi Motion Adaptive Deinterlacing technology. This claim chart is meant to be exemplary of infringement by any Vizio television incorporating MDDi Motion Adaptive Deinterlacing technology.

Refer to service manuals for the representative Vizio TVs, e.g. VW46L FHDTV10A service manual PDF pages 25-29, (**Exhibit 9**); L42HDTV10A/GV42L service manual PDF pages 20-26, 50, (**Exhibit 8**); L37HDTV service manual PDF pages 30-32, 37-43 (**Exhibit 10**), P42HDTV10A service manual PDF pages 25-28, 33-34, (**Exhibit 11**). The service manual for Vizio’s VX32L and VW32L televisions is available at: http://www.smarthelpcenter.com/manuals/VIZIO_VX32L_VW32L_HDTV20A_AUO_LPL_Samsung_Service_Manual_C.pdf
The service manual for the VX37L televisions is available at: http://www.smarthelpcenter.com/manuals/VIZIO_VX37LHDTV10A_Service_Manual_C.pdf

The exhibits referenced herein were previously provided to Vizio, as numbered, as part of Oplus’ initial service of Infringement Contentions.

Claim	Infringement by Vizio Televisions Incorporating MDDi
Claim 7 A method for de-interlacing an interlaced video format, the method comprising the steps of:	<p>Vizio televisions with MDDi use that technology to give them an advantage in video quality and in particular an advantage in deinterlacing and displaying interlaced video signals as a high definition signal.</p> <p>All Vizio flat panel (e.g. HDTV) televisions must deinterlace received interlaced video signal (e.g. NTSC, 1080i HDTV) in order to display those signals in progressive form on the flat panel.</p> <p>See Exhibit 8, p. 26:</p>

Infringement Chart
U.S. Patent No. 6,239,842
Vizio Televisions or Displays with MediaTek MDDi Motion Adaptive Deinterlacing technology

	<p>MT8205 Application</p> <p>MT8205 is a highly integrated single chip for PDP TV supporting video input and output format up to HDTV. It includes 3D comb filter TV Decoder to retrieve the best image from popular composite signals. On-chip advanced motion adaptive de-interlacer converts accordingly the interlace video into progressive one with overlay of a 2D Graphic processor. Optional 2nd HDTV or SDTV inputs allows user to see multi-programs on same screen. Flexible scalar provides wide adoption to various PDP panel for different video sources. Its on-chip audio processor decodes analog signals from Tuner with lip sync control, delivering high quality post-processed sound effect to customers. On-chip microprocessor reduces the system BOM and shortens the schedule of UI design by high level C program. MT8205 is a cost-effective and high performance HDTV-ready solution to TV manufactures.</p>
(a) receiving the interlaced video format feature a sequence of fields of pixels to be de-interlaced;	<p>The interlaced video signal is received by the TV via an antenna connector and tuner and/or video connector. Interlaced video signals by definition incorporate a sequence of fields of pixels with the commonly used interlaced video signals (e.g. NTSC 480i, 1080i) having two fields with one field containing all of the even scan lines and the other field containing all of the odd scanning lines. The fields by definition have missing scanning lines and thus missing pixels of those scanning lines.</p> <p>See Exhibit 8, p. 21:</p>



EXHIBIT E

TO

**EXPERT REPORT AND
DECLARATION OF D. MICHAEL
HOLMES**

Infringement Chart
U.S. Patent No. 7,271,840

Vizio Televisions or Displays with MediaTek MDDi Motion Adaptive Deinterlacing Technology

Vizio (or its customers or retailers) have infringed claims 56, 57, 58, 59, and 62 of U.S. Patent No. 7,271,840 (“the ‘840 patent”) within the meaning of 35 U.S.C. 271(a) by making, using, selling, offering for sale, or importing in to the United States televisions incorporating MediaTek MDDi Motion Adaptive Deinterlacing with 3:2 Pulldown Detection, including at least Vizio’s L42HDTV10A, GV42L, VW46L, FHD TV10A, L37HDTV, P42HDTV10A, VX32L, VW32L, and VX37L televisions (e.g. MediaTek MT535X, MT538X and MT820X video signal processing chips with MDDi). As described, Vizio also induces and contributes to infringement within the meaning of 35 U.S.C. 271(b) and 35 U.S.C. 271(c). On information and belief, many more Vizio televisions incorporate MediaTek MDDi Motion Adaptive Deinterlacing technology. This claim chart is meant to be exemplary of infringement by any Vizio television incorporating MDDi Motion Adaptive Deinterlacing with 3:2 Pulldown Detection. As discovery has just begun, Oplus reserves the right to add additional claims and/or products.

Refer to service manuals for the representative Vizio TVs, e.g. VW46L FDDTV10A service manual PDF pages 25-29, (**Exhibit 9**); L42HDTV10A/GV42L service manual PDF pages 20-26, 50, (**Exhibit 8**); L37HDTV service manual PDF pages 30-32, 37-43, (**Exhibit 10**); P42HDTV10A service manual PDF pages 25-28, 33-34, (**Exhibit 11**). The service manual for Vizio’s VX32L and VW32L televisions is available at:

http://www.smarthelpcenter.com/manuals/Vizio/VIZIO_VX32L_VW32L_HDTV20A_AUO_LPL_Samsung_Service_Manual_C.pdf

The service manual for the VX37L televisions is available at:

http://www.smarthelpcenter.com/manuals/Vizio/VIZIO_VX37LHDTV10A_Service_Manual_C.pdf

The exhibits referenced herein were previously provided to Vizio, as numbered, as part of Oplus’ initial service of Infringement Contentions.

Claim Element	Infringement by Vizio Televisions or Displays Incorporating MDDi Motion Adaptive Deinterlacing Technology
56. A method determining entropy of a pixel of a real time streaming digital video image signal,	Vizio TVs which utilize MediaTek MDDi Motion Adaptive Deinterlacing with 3:2 Pulldown Detection (hereinafter “MDDi”) operate so as to determine the entropy of a pixel of a real time streaming digital video image signal (e.g. a recorded or broadcast digital television signal). Specifically, MDDi utilizes 3:2 deinterlacing. In 3:2 deinterlacing, in order to determine if a

A007859

(12) **United States Patent**
Segman

(10) **Patent No.:** **US 6,239,842 B1**
(45) **Date of Patent:** **May 29, 2001**

(54) **METHOD OF DE-INTERLACING VIDEO SIGNALS USING A MIXED MODE SPATIAL AND TEMPORAL APPROXIMATION TECHNIQUE**

(75) Inventor: **Yosef Segman, Zichron Yaacov (IL)**

(73) Assignee: **Oplus Technologies Ltd., Haifa (IL)**

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/215,188**

(22) Filed: **Dec. 18, 1998**

(51) Int. Cl.⁷ **H04N 7/01**

(52) U.S. Cl. **348/448; 348/441; 348/459**

(58) Field of Search **348/448, 441, 348/458, 459, 443, 445, 452, 454, 910; H04N 7/01**

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Primary Examiner—Reinhard J. Eisenzopf

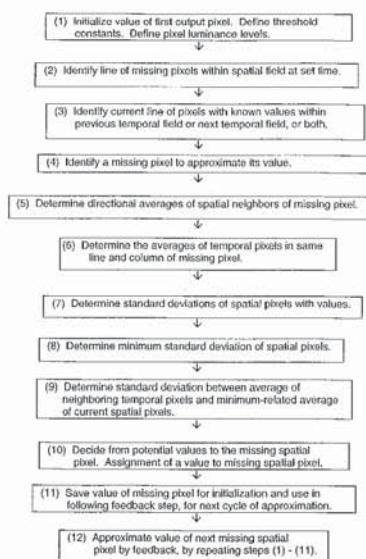
Assistant Examiner—Jean W. Désir

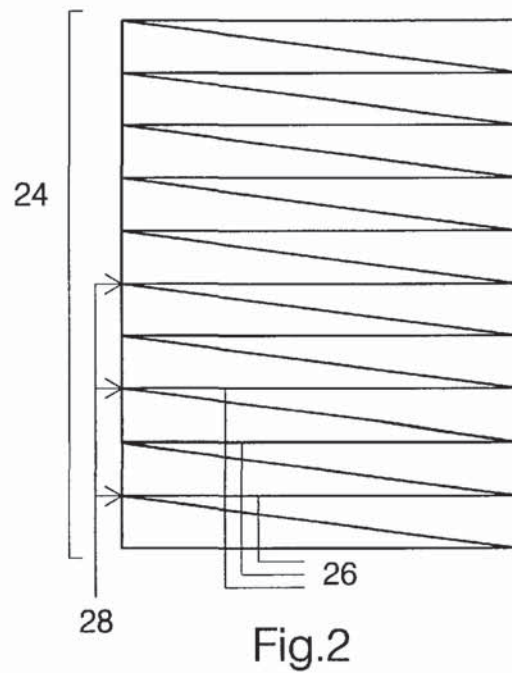
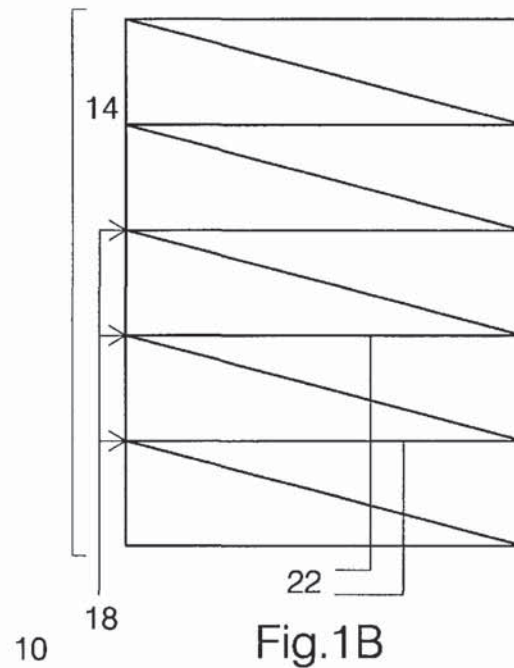
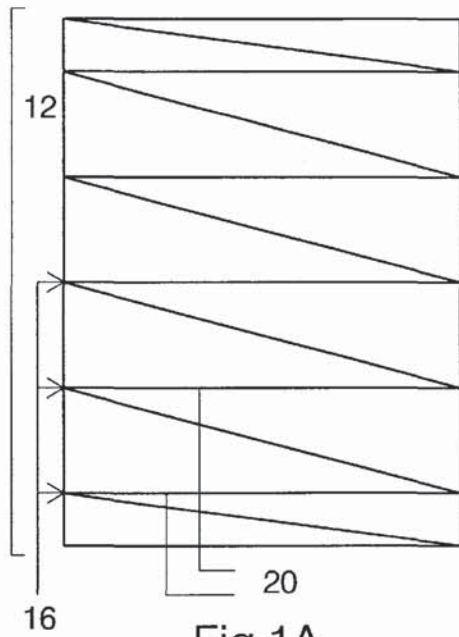
(74) *Attorney, Agent, or Firm*—Mark M. Friedman

(57) **ABSTRACT**

A method of de-interlacing interlaced video formats using a mixed mode spatial and temporal approximation technique. This method can be implemented with input of known pixel values obtained from only two fields, featuring the current spatial field containing missing pixels, and either of two neighbor temporal fields containing known pixels. Decision steps requiring evaluation of a series of logical operations lead to assignment of values to missing spatial pixels. There is a feedback step of approximated values of missing pixels from one cycle to the next cycle of approximation of missing pixel values. This method is applicable to a variety of video interlaced signals, including interlaced RGB component signals, and video signals containing luminance and chrominance components. Video de-interlacing according to the present invention is an efficient way of having image processing devices operating with interlaced technology be compatible with visual display monitors operating with de-interlaced (progressive) high resolution scan format systems. Moreover, the method of this invention is applicable to real time and off-line modes of operation of video and television systems currently using interlaced scanning formats.

19 Claims, 5 Drawing Sheets





U.S. Patent

May 29, 2001

Sheet 2 of 5

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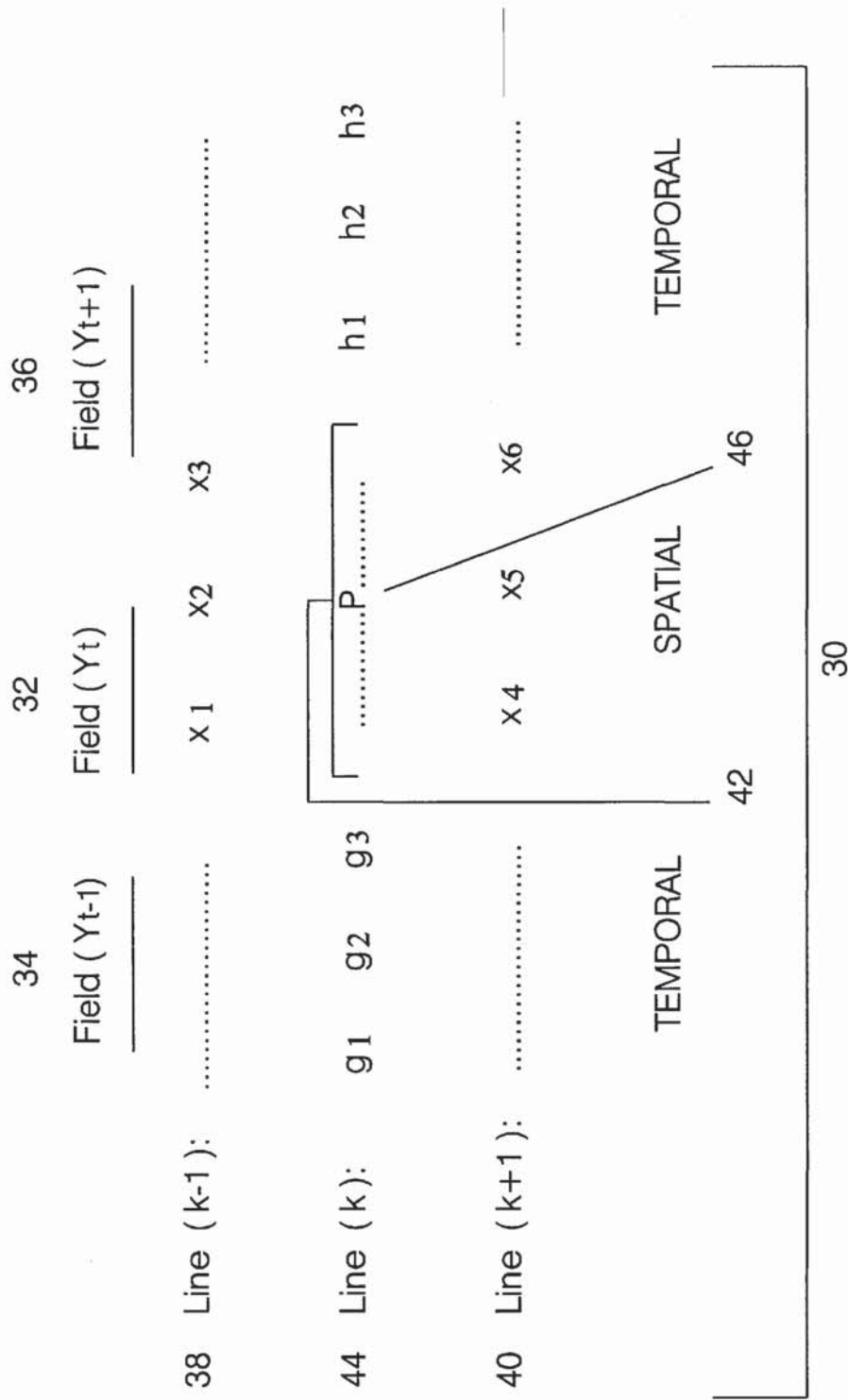


Fig.3

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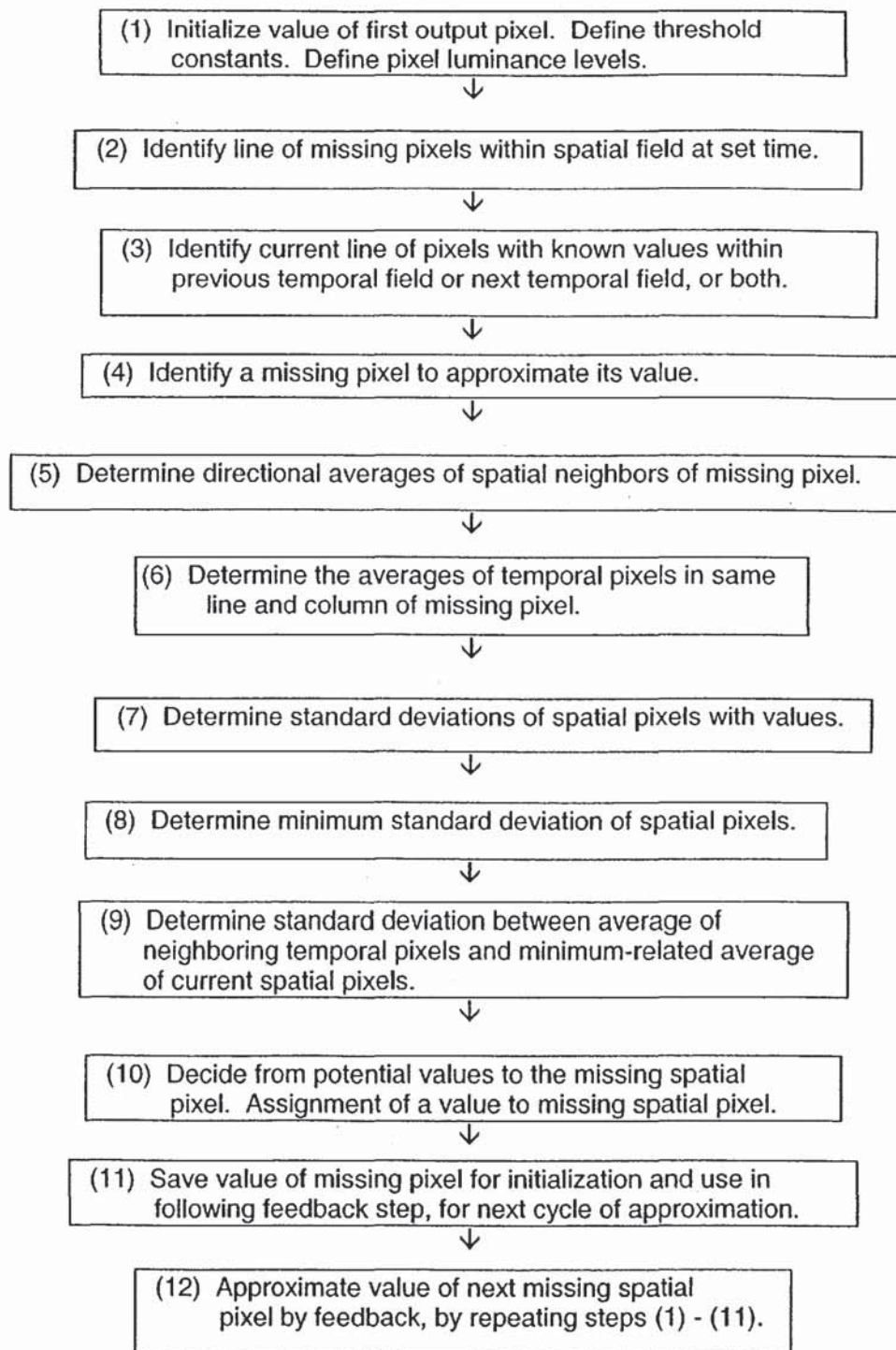


FIG. 4

- (1) **Initialize value of first output pixel.**
 - (a) first initialization, set output value of previous pixel value (Previous-Result) = 0.
Define threshold constants.
 - $A_i = (\text{threshold constant } i)$, for $i = 1$ to 8.**Define pixel luminance levels.**
 - $B = \text{Darkness level (black level)}$. - $W = \text{Brightness level (white level)}$.
- (2) **Identify line of missing pixels within spatial field at a given set time.**
 - (a) set-up matrix representation of pixels in grid space (Figure 3).
 - missing spatial pixels located in horizontal line 42 in Line (k) 44.
- (3) **Identify current line of pixels with known values within previous temporal field or next temporal field, or both.**
 - (a) refer to matrix representation of pixels in grid space (Figure 3).
 - temporal pixels with values located in Line (k) 44, in previous temporal Field (Y_{t-1}) 34, having values g_1, g_2, g_3 .
 - temporal pixels with values located in Line (k) 44, in next temporal Field (Y_{t+1}) 36, having values h_1, h_2, h_3 .
- (4) **Identify a missing pixel in the line of missing pixels, whose value is to be approximated.**
 - (a) refer to matrix representation of pixels in grid space (Figure 3).
 - missing spatial pixel P 46 located in Line (k) 44 of missing pixels, in spatial Field (Y_t) 32.
- (5) **Determine directional averages of spatial neighbors of missing pixel.**
 - (a) pixel values from matrix representation of pixels in grid space (Figure 3).
 - spatial pixels with values located in Line (k - 1) 38, and in Line (k + 1) 40, in current spatial Field (Y_t) 32, having values x_1, x_2, x_3 , and x_4, x_5, x_6 .
 - (b) evaluate directional averages, m_i , of spatial pixels with values, where $m_1 = a_1x_1 + a_2x_6$, $m_2 = b_1x_2 + b_2x_5$, and $m_3 = c_1x_3 + c_2x_4$, with $a_1 + a_2 = 1$, $b_1 + b_2 = 1$, and $c_1 + c_2 = 1$, where coefficients a_i, b_i , and c_i are positive constants.
- (6) **Determine averages of temporal pixels in same line and column of missing pixel.**
 - (a) pixel values from matrix representation of pixels in grid space (Figure 3).
 - temporal pixel with a value located in Line (k) 44, in previous temporal Field (Y_{t-1}) 34, having value g_2 , and temporal pixel with a value located in Line (k) 44, in next temporal Field (Y_{t+1}) 36 having value h_2 .
 - (b) evaluate the average, m_T , of temporal pixels with values, where $m_T = d_1g_2 + d_2h_2$, with $d_1 + d_2 = 1$, and where coefficients d_1 and d_2 are positive constants, greater than or equal to zero.
 - (c) evaluate the average, n_T , of temporal pixels with values, where $n_T = e_1g_1 + e_2h_1$, with $e_1 + e_2 = 1$, and where coefficients e_1 and e_2 are positive constants, greater than or equal to zero.

FIG. 5/1

- (7) **Determine the standard deviations of spatial pixels with known values, in the same field as the missing spatial pixel.**
 (a) evaluate standard deviations, $\text{Sigma } i$, for $i = 1$ to 3, where
 $\text{Sigma } 1 = s_1 [\text{abs } (x_1 - m_1)]$, $\text{Sigma } 2 = s_2 [\text{abs } (x_2 - m_2)]$, and
 $\text{Sigma } 3 = s_3 [\text{abs } (x_3 - m_3)]$, where s_i (for $i = 1$ to 3) is a positive constant, and equations of $\text{Sigma } i$ are approximations to the standard deviations.
- (8) **Determine the minimum standard deviation of known spatial pixels.**
 (a) evaluate the minimum standard deviation, Min-Sigma , from the set of $\text{Sigma } i$ ($i = 1$ to 3), where $\text{Min-Sigma} = \text{Min} [\text{Sigma } i]$ for $1 \leq i \leq 3$.
 - define m_j (where $j = i$) equal to the average of spatial pixel values related to Min-Sigma .
- (9) **Determine the standard deviation between the average of neighbor temporal pixels and the minimum-related average of current spatial pixels.**
 (a) evaluate the standard deviation, Sigma , where
 $\text{Sigma} = \text{abs } (m_T - m_j)$, where m_T and m_j were previously evaluated.
- (10) **Decide from potential values to the missing spatial pixel, and assign a value to the missing spatial pixel.**
 (a) evaluate logical operations of linear combinations of averages, standard deviations, minimum standard deviations, absolute values of differences between average values of pixels and known values of pixels, and known values of pixels, with previously defined threshold constants, and pixel luminance levels.
 (b) assign the value of the correct decision to the missing spatial pixel.
 - If (i) $\text{Sigma} \leq (K_0 + \text{Min-Sigma})$, where $-C_0 \leq K_0 < C_0$, or
 (ii) $\text{Min-Sigma} \geq (W - K_1)$, where $-C_1 \leq K_1 < C_1$, or
 (iii) $\text{abs } (m_T - x_1) < A_1$, or (iv) $\text{abs } (m_T - x_2) < A_2$, or
 (v) $\text{abs } (m_T - x_3) < A_3$, or (vi) $\text{abs } (m_T - x_4) < A_4$, or
 (vii) $\text{abs } (m_T - x_5) < A_5$, or (viii) $\text{abs } (m_T - x_6) < A_6$, or
 (ix) $m_T \leq (B + K_2)$, where $-C_2 \leq K_2 < C_2$, or
 (x) $[(\text{Previous-Result}) - n_T \leq A_6]$ and $[m_T \geq W - A_7]$, then:
 - If $\text{Sigma} < A_8$, value of the missing spatial pixel (P 46 in Fig. 3) is assigned as: $P = (m_T + m_j) * K_3$, where $0 < K_3 < 1$.
 - If $\text{Sigma} \geq A_8$, value of the missing spatial pixel (P 46 in Fig. 3) is assigned as: $P = m_T$.
 - If none of (i) through (x) is correct, then value of missing spatial pixel (P 46 in Fig. 3) is assigned as: $P = m_j$.
- (11) **Save value of missing pixel, P, for next feedback step (Step (12)).**
 (a) assign value of current missing pixel to previous result, as
 $(\text{Previous-Result}) = P$, for use in initialization of the next feedback cycle.
- (12) **Approximate a value of a next missing spatial pixel by feedback, by repeating Steps (1) through (11).**

FIG. 5/2

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METHOD OF DE-INTERLACING VIDEO SIGNALS USING A MIXED MODE SPATIAL AND TEMPORAL APPROXIMATION TECHNIQUE

FIELD AND BACKGROUND OF THE INVENTION

The present invention relates to processing of video signals. In particular, this invention relates to a method of de-interlacing interlaced video formats using a mixed mode spatial and temporal approximation technique.

Video signals are currently represented as sequences of a) fields in case of interlace scan refresh or b) frames according to non-interlace or progressive scan refresh. In the interlaced scan format, a single image (frame) is represented using a pair of fields. One field of the pair features pixels located in alternate rows (odd numbered horizontal lines, for example) of the field matrix. The second field of the pair features pixels located in the same field matrix only in the corresponding horizontal lines (even numbered horizontal lines, for example) which were missing pixels in the first field, such that portions of the image not represented in the first field are represented in the second field. In the interlaced scan format, each field of image data is scanned twice, once for the odd numbered horizontal lines of the field, and another time for the even numbered horizontal lines of the field, in order to have all of the horizontal lines of the odd field followed by all of the horizontal lines of the even field. The pair of fields of odd and even horizontal lines in interlaced video constitute the frame (one full resolution picture or image). In contrast, in the de-interlaced or progressive scan format, an image is represented in its entirety using only a single field which includes pixels in all horizontal lines of the field matrix. Here, each frame (field) of image data is scanned once from the top horizontal line to the bottom horizontal line without requiring interlacing action between two fields.

In the interlace scan format, the first and second fields of a pair are scanned consecutively on a video display monitor at a rate of 60 fields per second, in order to reconstruct single image frames on the display at the industry interlaced scan standard of 30 frames per second. In more recently developed video representation technique using de-interlacing (progressive scan format) format, frames are progressively scanned on a display at the standard progressive display rate of 60 frames per second.

Application of current interlace scan format to television, includes the NTSC (National Television System Committee) and the PAL (Phase Alternation by Line) systems. In the NTSC format, there are 262.5 horizontal scanning lines per field (including one odd numbered field, and one even numbered field), translating to 525 scanning lines per frame, with an established scan rate of (60 fields) 30 frames per second. In the PAL format, there are 312.5 horizontal scanning lines per field (including one odd numbered field, and one even numbered field), translating to 625 scanning lines per frame, with an established scan rate of (50 fields) 25 frames per second.

New display systems such as CRT (PC monitors), flat liquid crystal device (LCD) panels, plasma display panels (PDP), and video equipment, including cameras, broadcast station transmitters and high definition television (HDTV) desktop or workstation display monitors are using de-interlaced (progressive) high resolution scan format systems such as VGA(480 lines×640 columns per frame), SVGA(600 lines×800 columns per frame), XGA(768 lines×

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1024 columns per frame), and UXGA(1200 lines×1600 columns per frame) to scan and display image data. An example showing the need for de-interlacing interlaced video data, is a typical LCD display having 480 horizontal scanning lines with 640 dots per scanning line (VGA system). Since LCD display systems are designed to be scanned in the de-interlaced format, when the need is to display NTSC (525 lines per frame) and PAL (625 lines per frame) image signals on an LCD display, interlaced image signals need to be converted into de-interlaced image signals for proper display.

It is known that higher quality image reproductions are obtained by using de-interlaced scanned format rather than interlaced scan format, because interlaced displays are more likely to exhibit visual artifacts (such as line crawl on diagonal edges of an image, and interline flicker on horizontal edges of an image) than de-interlaced scan displays. As a result, there has been substantial effort towards developing methods of converting or de-interlacing interlaced video image data suitable for display on de-interlaced or progressive scan format devices.

Several conversion or de-interlacing methods, devices, and systems for video image processing have been developed, most of which feature one or a more of a variety of spatial, temporal, or spatio-temporal interpolation processing for estimating the values of missing pixels in an interlaced frame. The relative suitability of these techniques depends on the resulting image quality. Moreover, different interpolation techniques and systems work better under different conditions.

U.S. Pat. No. 5,661,525 issued to Kovacevic et al., features a method for de-interlacing an interlaced video frame sequence using interpolation of spatial and temporal pixels for estimating values of missing pixels. The interpolations are weighted according to the errors each one introduces for generating the approximations of missing pixel values for a de-interlaced frame. In these interpolations, three fields of pixels are used, i.e., the current spatial field and the two neighboring (immediately preceding and following) fields of pixels are used for estimating values of missing pixels in the current spatial field. In U.S. Pat. No. 5,793,435 issued to Ward et al., a de-interlacing system for converting an interlaced video to a progressive video features a variable coefficient, non-separable spatio-temporal interpolation filter. Reference and offset video signals are weighted together with filter coefficients in the spatio-temporal interpolation filter, to produce an interpolated video signal. The interpolated video signal is interleaved with the reference video signal, suitably delayed to compensate for filter processing time, to produce the de-interlaced video signal. U.S. Pat. No. 5,621,470 issued to Sid-Ahmed makes use of interpolation in an inter-pixel and inter-frame arrangement and incorporates a 3D (low pass) filter to support such actions. The 3D interpolator produces twice the number of pixels along each horizontal line, twice the number of lines in each frame and double the number of frames per second. Another interpolation filter apparatus applied to de-interlacing is presented in U.S. Pat. No. 5,559,905 issued to Greggain et al., in which interpolation of a stream of input pixels involves a filter providing a means for aligning the stream of input pixels and the first derived stream of sampled (output) pixels at the boundaries of the image, at a predetermined interpolation rate. U.S. Pat. No. 5,650,824 issued to Si Jun Huang, includes the use of a filter which performs linear interpolation on interlaced image data, involving two neighboring field samples for each odd field and even field input.

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An example of a device for implementing an interpolation method of de-interlacing video signals is given in U.S. Pat. No. 5,717,466 issued to Shao Wei Pan et. al., featuring an enhanced video circuit for performing (linear and non-linear) non-uniform interpolation of video scan lines. A real-time video system which incorporates the circuit device featured in U.S. Pat. No. 5,717,466, is shown in U.S. Pat. No. 5,742,350, issued to the same.

Current methods of de-interlaced video signals are notably limited with respect to de-interlacing video images featuring textual data. Standard approximation methods currently used for de-interlacing interlaced video signals are typically based on interpolation techniques, for evaluating missing pixels in interlaced fields of video signals. These interpolation techniques require the use of no less than three fields of pixels with known values for estimating values of missing pixels.

A more accurate and comprehensive approximation method for de-interlacing interlaced video signals involves usage of logical operations, for making decisions leading to assignment of highly accurate values of missing pixels, included in a technique which involves extrapolation, and not only interpolation, of missing pixels in interlaced fields of video signals. Moreover, a de-interlacing method which requires less than three fields of pixels with known values for approximating values of missing pixels would translate to a significant savings of resources required for de-interlacing. A method requiring input information from two, instead of three, fields of pixels with known values would require measurably less data processing resources including hardware, software, memory, and calculation time. There is thus a need for, and it would be useful to have, an accurate and comprehensive method of de-interlacing interlaced video signals currently used in standard video and television devices, which is generally applicable to both numerical and textual image data, and which requires fewer resources. Moreover, there is a need for such an improved de-interlacing method applicable to either real time or off-line mode of operation of video and television signal de-interlacing.

SUMMARY OF THE INVENTION

The present invention relates to a method of de-interlacing interlaced video signals using a mixed mode spatial and temporal approximation technique.

Hereinafter, the term 'current' is used with respect to a given set time of de-interlacing an interlaced video signal, and is used as a temporal reference point in describing the approximation method of the present invention, whether the interlaced video signal be in real time or off-line mode of operation. Hereinafter, the term 'logical operations' refers to usage of the known logical operators of 'less than', 'less than or equal to', 'greater than', 'greater than or equal to', 'and', 'or', and 'xor'. Spatial pixels of a current spatial field of pixels, and pixels of the previous and/or the following temporal fields, are used as inputs of the approximation method.

The method of video de-interlacing of the present invention is based on a unique mixed mode spatial and temporal approximation technique, involving approximating missing pixels of interlaced (half) fields required to form a single de-interlaced frame (raster) of pixels positioned in grid space of a visual display device. The method of the present invention provides the unique capability of implementation using input information from only two, instead of using the conventional three fields of pixels with known values, for

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approximating values of missing pixels in a current spatial field, i.e., in addition to the current spatial field featuring known and missing values of spatial pixels, only one neighboring temporal field having temporal pixels with known values need be used for performing all necessary calculations, determinations, and evaluations for completely de-interlacing an interlaced video signal. The method of the present invention involves unique usage of logical operations, for making decisions leading to assignment of highly accurate values of missing pixels. Additionally, the method of the present invention includes a feedback step for continuation of the approximation method of evaluating a value of a next missing pixel, following evaluation of a previous missing pixel.

A preferred embodiment of a method of video de-interlacing of the present invention features the following principle steps: (1) initialization of the value of the first output pixel, and definition of threshold constants and pixel luminance levels (where luminance refers to brightness or darkness), to be used in a later decision step in evaluating missing pixels, (2) identification of a line of missing pixels within a spatial field at a set time, (3) identification of a current line of pixels with known values within the previous temporal field or the next temporal field, or within both the previous temporal field and the next temporal fields, (4) identification of a missing spatial pixel in the line of missing spatial pixels, (5) determination of directional averages of the spatial neighbors of the missing spatial pixel, in the current spatial field, at the set time, (6) determination of averages of temporal pixels located in the same line and column of the missing spatial pixel, but in previous and/or next temporal fields, (7) determination of standard deviations of the spatial pixels with known values, located in the same field as the missing spatial pixel, (8) determination of the minimum standard deviation of the spatial pixels, (9) determination of the standard deviation between the average of the neighboring temporal pixels, and the average of the current spatial pixels related to the minimum standard deviation of step (8), (10) deciding from several potential values to the missing spatial pixel, based on evaluation of a series of logical operations of previously determined values, leading to assignment of a value to the missing spatial pixel, (11) saving the value of step (10), for use in performing the following feedback step for approximating a value of a next missing spatial pixel, and (12) approximation of a value of a next missing spatial pixel by feedback, by repeating steps (1) through (11).

There are several ways to represent color video. Currently, video broadcasts are based on formats such as YUV, and YCrCb, where Y is known as the luminance (brightness or darkness) component and UV or CrCb are different chrominance (color) components. The above outlined method is generally applicable to any type of interlaced video signal format, including interlaced color video formats.

The method of the present invention, may be similarly implemented for the case of video interlaced RGB signals, whereby the above method (steps (1) through (11)) is repeated for each color component (red, green, and blue).

The method of the present invention, may be similarly implemented for the case of video interlaced signals represented by luminance and chrominance components (for example, YUV, YCrCb), whereby the above method (steps (1) through (11)) is repeated only for the luminance components (the Y part), and an approximation is performed for the chrominance components (the CrCb part), from information obtained from the decision step (10).

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According to the present invention, there is provided a method for de-interlacing an interlaced video format, the method comprising the steps of: (a) receiving the interlaced video format featuring a sequence of fields of pixels to be de-interlaced, and (b) using a current spatial field featuring missing spatial pixels and the spatial pixels with known values, located in the sequence of the fields, and at least one temporal field featuring temporal pixels with known value, located in the sequence of the fields, for determining values of the missing pixels of the current spatial field.

According to the present invention, there is provided a method for de-interlacing an interlaced video format, the method comprising the steps of: (a) receiving the interlaced video format featuring a sequence of fields of pixels to be de-interlaced, (b) evaluating logical operations of linear combinations of values selected from the group consisting of averages of known values of spatial pixels, averages of the known values of temporal pixels, standard deviations of the known values of the spatial pixels, standard deviation of the known values of the temporal pixels, minimum of the standard deviations of the known values of the spatial pixels, absolute values of differences between the averages of the known values of the temporal pixels and the known values of the spatial pixels, the known values of the spatial pixels, and a plurality of constants, the logical operations selected from the group consisting of greater than, greater than or equal to, less than, less than or equal to, 'and', 'or', and 'xor', and (c) deciding upon assignment of values to missing spatial pixels according to results of the logical operations.

The method of video de-interlacing of the present invention, leads to the capability of using image processing devices operating with interlaced technology to be compatible with visual display monitors operating with de-interlaced (progressive) high resolution scan format systems. Moreover, the method of video de-interlacing of the present invention is applicable to either real time or off-line mode of operation of video and television signal de-interlacing.

The present invention could be implemented by hardware or by software on any operating system of any firmware or a combination thereof. For example, as hardware, the invention could be implemented as a chip or a circuit. As software, the invention could be implemented as a plurality of software instructions being executed by a computer using any suitable operating system. In any case, the steps of the method of the invention could be described as being performed by a data processor, such as a computing platform for executing a plurality of instructions, regardless of the implementation of the present invention.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention is herein described, by way of example only, with reference to the accompanying drawings, wherein:

FIG. 1A is an illustration of an odd field (one half of odd lines of a single frame) of an interlaced scan format;

FIG. 1B is an illustration of an even field (one half of even lines of a single frame) of an interlaced scanned format;

FIG. 2 is an illustration of a single frame (two fields at the same time) of a de-interlaced scanned format;

FIG. 3 shows an example of a matrix representation of pixel grid space for a given spatial field and immediate neighboring temporal fields of an interlaced video signal;

FIG. 4 is a flow diagram of a preferred embodiment of the method for de-interlacing a sequence of interlaced fields according to the present invention; and

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FIG. 5 (comprising two pages as FIG. 5/1, and FIG. 5/2 as continuation of FIG. 5/1) is a flow diagram of an exemplary preferred embodiment for implementing the method of the video de-interlacing method according to the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

The present invention is of a method of de-interlacing interlaced video signals using a mixed mode spatial and temporal approximation method. The approximation method includes a decision step, featuring evaluation of a series of logical operations leading to a decision of assignment of a value to a missing pixel in an interlaced field of a video signal, and assignment of a value to that missing pixel based on the correct comparison. The approximation method includes feedback of the approximated value of a previous missing pixel, to the initial step of the approximation method, for approximation of a next missing pixel.

The components and operation of a method of de-interlacing video signals according to the present invention are better understood with reference to the drawings and the accompanying description. It is to be noted that illustrations of the present invention shown here are for illustrative purposes only and are not meant to be limiting.

Referring now to the drawings, FIG. 1 is an illustration of a pair 10 of an odd field 12 and of an even field 14 of an interlaced scanned format. FIG. 1A is an illustration of the odd field 12, featuring one half of odd lines of a single frame of an interlaced scan format (i.e., each frame includes one odd field and one even field). In terms of an electronic device providing visual display of video signals, the odd field 12 of the pair 10 features lines of pixels 20, located in alternate rows 16 (odd numbered horizontal lines, for example) of grid space, also corresponding to a field matrix representation (FIG. 3).

FIG. 1B is an illustration of the even field 14, featuring one half of even lines of a single frame of an interlaced scan format. The even field 14 of the pair 10 features lines of pixels 22 located in the same grid space as the lines of pixels 20 in the odd field 12, but only in correspondingly alternate rows 18 (even numbered horizontal lines, for example) which were missing pixels in the odd field 12, such that portions of the image not represented in the odd field 12 are now represented in the even field 14. Each field of the pair 10 includes pixels representative of one-half of a complete single image which was recorded, such that sequential scanning of both fields of pixels 12 and 14 is required for reconstructing the image.

FIG. 2 shows an illustration of a single frame 24 (two fields at the same time) of a de-interlaced scanned format. Frame 24 includes horizontal lines of pixels 26 in both odd and even horizontal rows 28, such that scanning the single frame captures the entire image in contrast to the need for sequential scanning of both the odd field 12 and the even field 14 of the interlaced scanned format 10 of FIG. 1.

FIG. 3 shows an example of a matrix representation 30 of pixel grid space for a given spatial field and immediate neighboring temporal fields of an interlaced video signal. The matrix representation 30 is referred to in the corresponding preferred embodiment of a mixed mode spatial and temporal approximation method of the present invention (FIGS. 4 and 5), where a missing pixel (P 46 in FIG. 3), included in a sequence of interlaced fields of a video signal, is determined as part of the method of converting interlaced scanned format video signals to de-interlaced scanned format video signals.

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In FIG. 3, matrix representation 30, a sequence of temporally related luminance fields is featured as Field (Y_t) 32, Field (Y_{t-1}) 34, and Field (Y_{t+1}) 36. At a given set time of receiving an interlaced video signal, Field (Y_t) 32 represents a current spatial field, Field (Y_{t-1}) 34 represents the previous temporal field, and Field (Y_{t+1}) 36 represents the next temporal field. The current spatial field, Field (Y_t) 32 includes spatial pixels x_1 , x_2 , and x_3 in Line (k-1) 38, and spatial pixels x_4 , x_5 , and x_6 in Line (k+1) 40. The horizontal line 42 is missing spatial pixels in Line (k) 44. The temporal fields, Field (Y_{t-1}) 34, and Field (Y_{t+1}) 36 include temporal pixels g_1 , g_2 , and g_3 in Line (k) 44, and temporal pixels h_1 , h_2 , and h_3 in Line (k) 44, respectively. Spatial pixel P 46, represents a missing spatial pixel located in Line (k) 44, of the current spatial field, Field (Y_t) 32. Spatial pixel P 46 is to be approximated from spatial information located in the current spatial field, Field (Y_t) 32, and from temporal information located in either one or both temporal fields, Field (Y_{t-1}) 34, and Field (Y_{t+1}) 36, using a mixed mode spatial and temporal approximation method of the present invention.

In FIG. 4, each principle step of the method of the video de-interlacing method of the present invention is numbered and enclosed inside a box. FIG. 5, (comprising FIG. 5/1, and FIG. 5/2 as continuation of FIG. 5/1), shows a preferred illustrative embodiment for implementing the method shown in FIG. 4, also as a flow diagram.

Referring to FIG. 4, a preferred embodiment of a method of video de-interlacing of the present invention is as follows.

In Step 1, initialization is performed, in which the value of the first output pixel, evaluated by using the de-interlacing approximation method, is initialized. Additionally, threshold constants and pixel luminance (brightness and darkness) levels, to be used later in the decision step (Step 10) of assigning a value to a missing pixel, are defined.

In Step 2, there is identification of a horizontal line of missing spatial pixels within a current spatial field, at a given set time.

In Step 3, there is identification of the current horizontal line of temporal pixels with known values, located within the previous temporal field or the next temporal field, or alternatively, located within both the previous temporal field and next temporal field, corresponding to the same horizontal line of missing spatial pixels within the current spatial field determined in Step 2, at the given set time.

In Step 4, identification is made of a missing spatial pixel whose value is to be approximated, in the line of missing spatial pixels.

In Step 5, determination is made of directional averages of the known spatial pixel neighbors of the missing spatial pixel, in the current spatial field of the horizontal line of missing spatial pixels, at the given set time.

In Step 6, determination is made of averages of known temporal pixels, located in the previous temporal field or in the next temporal field, or alternatively, located in both the previous temporal field and in the next temporal field, in the same horizontal line and the same column of the missing spatial pixel.

In step 7, determination is made of standard deviations of known spatial pixels located in the current spatial field of the missing spatial pixel.

In Step 8, determination is made of the minimum standard deviation of the standard deviations determined in Step 7.

In Step 9, there is determination of the standard deviation between the average of neighbor temporal pixels evaluated

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in Step 6, and the average of current spatial pixels related to the minimum standard deviation evaluated in Step 8.

Step 10 is a decision step, deciding from several potential values to the missing spatial pixel, based on evaluation of a series of logical operations of previously determined values. The decision step concludes with assignment of a value to the missing spatial pixel.

In Step 11, the approximated value of the missing pixel determined in Step 10, is saved for initialization of, and in performing the following feedback step, Step 12, for approximating a value of a next missing spatial pixel, in the next cycle of the approximation method. Completion of Step 11, represents completion of a single cycle of approximating values of missing pixels in grid space, using a mixed mode spatial and temporal approximation technique of the present invention, of an interlaced format video signal, prior to transmission of a de-interlaced video signal to an electronic visual display device.

Step 12 continues the approximation method by approximation of a value of a next missing spatial pixel by feedback, by repeating Steps 1 through 11.

FIG. 5, (comprising two pages as FIG. 5/1, and FIG. 5/2 as continuation of FIG. 5/1), shows a flow diagram of an exemplary preferred embodiment for implementing the video de-interlacing method shown in FIG. 4. The preferred embodiment of FIG. 5 is an example of implementing the video de-interlacing method of the present invention for approximating the value of missing pixel P 46, shown in FIG. 3, included in a field of a sequence of an interlaced video signal. Principle step numbers and titles of FIG. 5/1 and of FIG. 5/2 correspond to those appearing in FIG. 4. Notation and symbols appearing in FIG. 5/1 and in FIGS. 5/2 are consistent with those appearing in FIG. 3. For each principle method step, definitions of selected terms or components of that step, or of a substep to that step, are included, in addition to one or more substeps representing further of the indicated principle method step of the video de-interlacing method. In the following description of preferred embodiment featured in FIG. 5/1 and FIG. 5/2, definitions are indicated by a hyphen, substeps are indicated by a letter in parentheses, and the multiplication operation is indicated by an asterisk (*).

Referring to FIG. 5/1, Step 1 starts the mixed mode spatio-temporal approximation de-interlacing method with initialization of the first output pixel, definition of threshold constants, and definition of pixel luminance levels. Step (a) is the initialization of the value of the first output pixel, of the approximation method of an interlaced sequence of a video signal of the present invention, such as that shown in FIG. 3 for example, whereby the output value of a previous pixel (Previous-Result) is set equal to zero, (Previous-Result)=0. Additionally in Step 1, threshold constants, A_i , for $i=1$ to 8, and pixel luminance levels, including B =a darkness level (black level), and W =a brightness level (white level), are each defined. Threshold constants and luminance levels are used later for completing a decision step, involving evaluation of a series of logical operations leading to assignment of a value to a missing pixel.

In Step 2 identification is made of a horizontal line of missing pixels within a current spatial field, at a given set time. Step (a) involves setting-up a matrix representation of pixels of a sequence of an interlaced video signal, featuring spatial and temporal pixels within spatial and temporal interlaced fields, at a given set (current) time. These interlaced fields are to be de-interlaced by the present approximation method. The example used in this embodiment of the

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present invention relates to that appearing in FIG. 3. There it is shown that missing spatial pixels are located in horizontal line 42, in Line (k) 44.

In Step 3, there is identification of the current horizontal line of pixels with known values, located in the previous temporal field (Field (Y_{t-1}) 34, FIG. 3), or in the next temporal field (Field (Y_{t+1}) 36, FIG. 3), or located in both the previous temporal field (Field (Y_{t-1}) 34, FIG. 3) and in the next temporal field (Field (Y_{t+1}) 36, FIG. 3), corresponding to the same location as the horizontal line of missing spatial pixels within the current spatial field determined in Step 2 (FIG. 5/1) at the given set time. Successful implementation of the method of the present invention, requires input values of known pixels from at least one temporal field neighbor of the current spatial field featuring missing pixels. In step (a), reference is made to FIG. 3, where temporal pixels, with values locate in Line (k) 44, in the previous temporal Field (Y_{t-1}) 34, have values g_1, g_2, g_3 , and temporal pixels with values, locate in Line (k) 44, in the next temporal Field (Y_{t+1}) 36, have values h_1, h_2, h_3 . Temporal pixels with known values, located in at least one of the neighboring previous temporal field, or next temporal field, are used as inputs in the approximation method of the present invention.

In Step 4, identification is made of a missing pixel in the line of missing pixels, whose value is to be approximated by the method of the present invention. In step (a), reference is made to FIG. 3, where a missing spatial pixel P 46 location in Line (k) 44 of missing pixels, in spatial Field (Y_t) 32 is selected, as part of an example of implementation of the approximation method.

In Step 5, determination is made of directional averages of the known spatial pixel neighbors of the missing spatial pixel (P 46 in FIG. 3), located in the current field of the horizontal line of missing spatial pixels, at the given set time. In step (a), neighbor pixel values are obtained from the matrix representation of pixels in grid space (FIG. 3). Neighbor spatial pixels with values, located in Line (k-1) 38, and in Line (k+1) 40, in the current spatial Field (Y_t) 32 of the missing spatial pixel P 46, have values x_1, x_2, x_3 , and x_4, x_5, x_6 , respectively. In step (b), the directional averages, m_j , are evaluated, where $m_1 = a_1x_1 + a_2x_6$, $m_2 = b_1x_2 + b_2x_5$, and $m_3 = c_1x_3 + c_2x_4$, with $a_1 + a_2 = 1$, $b_1 + b_2 = 1$, and $c_1 + c_2 = 1$, where coefficients a_i, b_i , and c_i are positive constants.

In Step 6, determination is made of averages of values of known temporal pixels, located in the previous temporal field and in the next temporal field, in the same horizontal line and the same column of the missing spatial pixel (P 46 in FIG. 3). In step (a), previous and next field pixel values are obtained from the matrix representation of pixels in grid space (FIG. 3). Temporal pixels with values, located in Line (k) 44, in the previous temporal Field (Y_{t-1}) 34, have values g_1, g_2 , and g_3 , and temporal pixels with values, located in Line (k) 44, in the next temporal Field (Y_{t+1}) 36 have values h_1, h_2 , and h_3 . In step (b), temporal pixel average, m_T , is evaluated, where $m_T = d_1g_2 + d_2h_2$, with $d_1 + d_2 = 1$, and where coefficients d_1 and d_2 are positive constants, greater than or equal to zero. In step (c), temporal pixel average, n_T , is evaluated, where $n_T = e_1g_1 + e_2h_1$, with $e_1 + e_2 = 1$, and where coefficients e_1 and e_2 are positive constants, greater than or equal to zero.

According to the values of the coefficients, d_1, d_2, e_1 , and e_2 , the approximation method of the present invention requires input values from three fields of pixels (one current spatial field and two neighboring temporal fields), or input values from two fields of pixels (one current spatial field and

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one neighboring temporal field), for approximating missing pixels in the current spatial field. In the case of $d_1 = 0$ and $e_1 = 0$, $m_T = d_2h_2$, and $n_T = e_2h_1$, temporal pixel values (h_1 and h_2) from only one temporal field, the next temporal field (Field (Y_{t+1}) 36, FIG. 3), are needed for evaluation of m_T and n_T , and ultimately evaluation of missing pixel P 46 (FIG. 3). Similarly, in the case of $d_2 = 0$ and $e_2 = 0$, $m_T = d_1g_2$, and $n_T = e_1g_1$, temporal pixel values (g_1 and g_2) from only one temporal field, the previous temporal field (Field (Y_{t-1}) 34, FIG. 3) are needed for evaluation of m_T and n_T , and ultimately evaluation of missing pixel P 46 (FIG. 3). In other cases, in which neither $d_1 = 0$ and $e_1 = 0$, or $d_2 = 0$ and $e_2 = 0$, occurs, then there is a known value of at least one temporal pixel from each of both neighboring temporal fields (Field (Y_{t+1}) 36 and Field (Y_{t-1}) 34, FIG. 3), to the current spatial field (Field (Y_t) 32, FIG. 3) featuring the missing spatial pixel (P 46, FIG. 3) to be approximated, in the equations for evaluating m_T and n_T , which are used in a later decision step (Step 10, FIG. 5/2) leading to evaluation of the missing spatial pixel (P 46, FIG. 3).

Continuation of the exemplary preferred embodiment of FIG. 5, appears in FIG. 5/2, where in Step 7, determination is made of standard deviations of spatial pixels with known values, located in the current spatial field of the missing spatial pixel (P 46 in FIG. 3). In step (a), standard deviations, Σ_i , are evaluated for $i=1$ to 3, where $\Sigma_1 = s_1[\text{abs}(x_1 - m_1)]$, $\Sigma_2 = s_2[\text{abs}(x_2 - m_2)]$, and $\Sigma_3 = s_3[\text{abs}(x_3 - m_3)]$, where s_i (for $i=1$ to 3) is a positive constant, and the term 'abs' appearing in the equations of $\Sigma_i = s_i[\text{abs}(x_i - m_i)]$, represents the absolute value of the term appearing in the parentheses, i.e., the absolute value of $(x_i - m_i)$. The equation used for evaluating the standard deviation of Σ_i , i.e., $\Sigma_i = s_i[\text{abs}(x_i - m_i)]$, is a known close approximation to the actual equation used for evaluating a standard deviation.

In Step 8, the minimum standard deviation of the standard deviations evaluated in Step 7 (FIG. 5/2) is determined. Step (a) features evaluation of the minimum standard deviation, $\text{Min} = \Sigma_i$, from the set of Σ_i ($i=1$ to 3), where $\text{Min} = \Sigma_i$ for $1 \leq i \leq 3$, and Min is a minimization operator. The term, m_j (where $j=i$) is defined as the average of spatial pixel values related to the minimum standard deviation, $\text{Min} = \Sigma_i$.

In Step 9, there is determination of the standard deviation between the average of neighbor temporal pixels evaluated in Step 6 (FIG. 5/1), and the average of current spatial pixels related to the minimum standard deviation evaluated in Step 8 (FIG. 5/2). Step (a) features evaluation of the standard deviation, Σ , where $\Sigma = [\text{abs}(m_T - m_j)]$, and where m_T and m_j correspond to the average of neighbor temporal pixels evaluated in Step 6 (FIG. 5/1), and the average of current spatial pixels related to the minimum standard deviation evaluated in Step 8 (FIG. 5/2), respectively.

Step 10 is a decision step, in which a series of logical operations are evaluated leading to decision and assignment of a value to the missing spatial pixel (P 46 in FIG. 3). The decision step concludes with assignment of a value to the missing spatial pixel.

In step (a), there is evaluation of a series of logical operations [listed as (i) through (x) in the preferred embodiment of the present invention shown in FIG. 5/2] featuring comparisons of: linear combinations of a standard deviation (Σ , or $\text{Min} = \Sigma_i$); or of absolute magnitude of the difference between temporal pixel average, m_T , and a selected spatial pixel with a known value (x_1, x_2, x_3, x_4, x_5 or x_6); or of an average (m_j); or of the difference between

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a previously approximated missing pixel value (Previous-Result) and an average of temporal pixels (n_T); to linear combinations of threshold constants (A_1 through A_6) or pixel luminance levels (B , W), previously defined in Step 1 (FIG. 5/1). The series of logical comparisons features the following, whereby, if any one of the following logical operations [(i) through (x)] is correct, then the decision is to assign (Step (b)) a value to the missing spatial pixel (P 46 in FIG. 3):

(i) $\text{Sigma} \leq (K0 + \text{Min-Sigma})$, where $-C_0 \leq K0 < C_0$, or (ii) $\text{Min-Sigma} \geq (W - K1)$, where $-C_1 \leq K1 < C_1$, or (iii) $\text{abs}(m_T - x_1) < A1$, or (iv) $\text{abs}(m_T - x_2) < A2$, or (v) $\text{abs}(m_T - x_3) < A3$, or (vi) $\text{abs}(m_T - x_4) < A4$, or (vii) $\text{abs}(m_T - x_5) < A5$, or (viii) $\text{abs}(m_T - x_6) < A6$, or (ix) $m_T \leq (B + K2)$, where $-C_2 \leq K2 < C_2$, or (x) $[(\text{Previous-Result}) - n_T] \leq A6$ and $[m_T] \geq W - A7$, whereby the following additional logical comparison is evaluated, to assign a value to the missing spatial pixel (P 46 in FIG. 3): If $\text{Sigma} < A8$, the value of the missing spatial pixel (P 46 in FIG. 3) is assigned (Step (b)) as: $P = (m_T + m_j) * K3$, where $0 < K3 < 1$. However, if $\text{Sigma} \geq A8$, the value of the missing spatial pixel (P 46 in FIG. 3) is assigned (Step (b)) as: $P = m_j$.

If none of the logical comparisons (i) through (x) is correct, then the decision is to assign (Step (b)) the value of missing spatial pixel (P 46 in FIG. 3) as: $P = m_j$.

In Step 10, the assigned value of missing spatial pixel (P 46 in FIG. 3) is obtained, in part, from input of known values of pixels located in either one, or two neighbor temporal fields (Field (Y_{t-1}) 36 and Field (Y_{t+1}) 34, FIG. 3), in addition to input of known values of pixels located in the current spatial field (Field (Y_t) 32, FIG. 3) featuring the missing spatial pixel (P 46, FIG. 3) to be approximated. As described in Step 6 (FIG. 5/1), and shown by the logical operations (equations) of Step 10, for the case in which the coefficients $d_1=0$ and $e_1=0$, then $m_T = d_2 h_2$, and $n_T = e_2 h_1$, or, for the case in which the coefficients $d_2=0$ and $e_2=0$, then $m_T = d_1 g_2$, and $n_T = e_1 g_1$, then the value of missing pixel P 46 (FIG. 3) is obtained using known values of pixels of only one neighbor temporal field, i.e., Field (Y_{t+1}) 36, or Field (Y_{t-1}) 34, and of the current spatial field, Field (Y_t) 32 featuring the missing pixel P 46, as shown in FIG. 3.

In Step 11, the approximated value of the missing pixel determined in Step 10, is saved for initialization of, and in performing the following feedback step, Step 12, for approximating a value of a next missing spatial pixel, in the next cycle of the approximation method. Completion of Step 11, represents completion of a single cycle of approximating values of missing pixels in grid space, using a mixed mode spatial and temporal approximation technique of the present invention, of an interlaced format video signal, prior to transmission of the de-interlaced video signal to an electronic visual display device.

In Step 12, continues the approximation method of the present invention, by approximation of a value of a next missing spatial pixel by feedback of (Previous-Result) from Step 11, and repeating Steps 1 through 11.

The method of the present invention, may be similarly implemented for the case of video interlaced RGB signals, whereby the above method (Steps 1 through 11, FIG. 5/1 and FIG. 5/2) is repeated for each color component (red, green, and blue).

The method of the present invention, may be similarly implemented for the case of video interlaced signals represented by luminance and chrominance components (for example, YUV, YCrCb), whereby the above method (Steps 1 through 11, FIG. 5/1 and FIG. 5/2) is repeated only for the

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luminance components (the Y part), and an approximation is performed for the chrominance components (the CrCb part), from information obtained from the decision step (Step 10).

While the invention has been described with respect to one embodiment, it will be appreciated that many variations, modifications and other applications of the invention may be made.

What is claimed is:

1. A method for de-interlacing an interlaced video format, the method comprising the steps of:

(a) receiving the interlaced video format featuring a sequence of fields of pixels to be de-interlaced;

(b) using a current spatial field featuring missing spatial pixels and said spatial pixels with known values, locate in said sequence of said fields, and at least one temporal field featuring temporal pixels with known values, located in said sequence of said fields, for determining values of said missing pixels of said current spatial field; and

(c) feedback of said values of said missing pixels of said current spatial field for determination of next said missing pixels of said current spatial field.

2. The method of claim 1, wherein said at least one temporal field featuring said temporal pixels with said known values is selected from the group consisting of immediate previous said temporal field to said current spatial field located in said sequence of said fields, and immediate next said temporal field to said current spatial field located in said sequence of said fields.

3. The method of claim 1, further comprising the steps of:

(c) evaluating logical operations of linear combinations of values selected from the group consisting of averages of said known values of said spatial pixels, averages of said known values of said temporal pixels, standard deviations of said known values of said spatial pixels, standard deviations of said known values of said temporal pixels, minimums of said standard deviations of said known values of said spatial pixels, absolute values of differences between said averages of said known values of said temporal pixels and said known values of said spatial pixels, said known values of said spatial pixels, and a plurality of constants, said logical operations selected from the group consisting of greater than, greater than or equal to, less than, less than or equal to, 'and', 'or', and 'xor'; and

(d) deciding upon assignment of said values to said missing spatial pixels according to results of said logical operations.

4. The method of claim 3, wherein said plurality of constants is selected from the group consisting of a linear combination of a plurality of values of threshold constants, and a linear combination of a plurality of values of luminance levels of said missing pixels.

5. The method of claim 4, wherein said plurality of said values of said luminance levels of said missing pixels includes a plurality of values of darkness and a plurality of values of brightness.

6. The method of claim 1, wherein said assigned values to said missing pixels feature linear combinations of averages of said pixels with said known value.

7. A method for de-interlacing an interlaced video format, the method comprising the steps of:

(a) receiving the interlaced video format feature a sequence of fields of pixels to be de-interlaced;

(b) evaluating logical operations of linear combinations of values selected from the group consisting of averages

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of known values of spatial pixels, averages of said known values of temporal pixels, standard deviations of said known values of said spatial pixels, standard deviations of said known values of said temporal pixels, minimums of said standard deviations of said known values of said spatial pixels, absolute values of differences between said averages of said known values of said temporal pixels and said known values of said spatial pixels, said known values of said spatial pixels, and a plurality of constants, said logical operations selected from the group consisting of greater than, greater than or equal to, less than, less than or equal to, 'and', 'or', and 'xor'; and

(c) deciding upon assignment of values to missing spatial pixels according to results of said logical operations.

8. The method of claim 7, wherein said sequence of fields of pixels to be de-interlaced features a current spatial field featuring missing spatial pixels and said spatial pixels with known values located in said sequence of aid fields, and at least one temporal field featuring said temporal pixels with said known values located in said sequence of said fields.

9. The method of claim 8, wherein said at least one temporal field featuring said temporal pixels with said known values is selected from the group consisting of immediate previous said temporal field to said current spatial field located in said sequence of said fields, and immediate next said temporal field to said current spatial field located in said sequence of said fields.

10. The method of claim 7, wherein said plurality of constants is selected from the group consisting of a linear combination of a plurality of values of threshold constants, and a linear combination of a plurality of values of luminance levels of said missing pixels.

11. The method of claim 10, wherein said plurality of said values of said luminance levels of said missing pixels includes a plurality of values of darkness and a plurality of values of brightness.

12. The method of claim 7, wherein said assigned values to said missing pixels feature said linear combinations of said averages of said pixels with said known values.

13. The method of claim 7, further comprising the step of:

(d) feedback of said values of said missing pixels of said current spatial field for determination of next said missing pixels of said current spatial field.

14. A method for de-interlacing an interlaced video format, the method comprising the steps of:

(a) receiving the interlaced video format featuring a sequence of fields of pixels to be de-interlaced;

(b) using a current spatial field featuring missing spatial pixels and said spatial pixels with known values,

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located in said sequence of said fields, and one temporal field featuring temporal pixels with known values, located in said sequence of said fields, for determining values of said missing pixels of said current spatial field;

(c) evaluating logical operations of linear combinations of values selected from the group consisting of averages of said known values of said spatial pixels, averages of said known values of said temporal pixels, standard deviations of said known values of said spatial pixels, standard deviations of said known values of said temporal pixels, minimums of said standard deviations of said known values of said spatial pixels, absolute values of differences between said averages of said known values of said temporal pixels and said known values of said spatial pixels, said known values of said spatial pixels, and a plurality of constants, said logical operations selected from the group consisting of greater than, greater than or equal to, less than, less than or equal to, 'and', 'or', and 'xor'; and

(d) deciding upon assignment of said values to said missing spatial pixels according to results of said logical operations.

15. The method of claim 14, wherein said one temporal field featuring said temporal pixels with said known values is selected from the group consisting of immediate previous said temporal field to said current spatial field located in said sequence of said fields, and immediate next said temporal field to said current spatial field located in said sequence of said fields.

16. The method of claim 14, wherein said plurality of constants is selected from the group consisting of a linear combination of a plurality of values of threshold constants, and a linear combination of a plurality of values of luminance levels of said missing pixels.

17. The method of claim 16, wherein said plurality of said values of said luminance levels of said missing pixels includes a plurality of values of darkness and a plurality of values of brightness.

18. The method of claim 14, wherein said assigned values to said missing pixels feature linear combinations of averages of said pixels with said known values.

19. The method of claim 14, further comprising the step of:

(c) feedback of said values of said missing pixels of said current spatial field for determination of next said missing pixels of said current spatial field.

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IN THE UNITED STATES DISTRICT COURT
FOR THE CENTRAL DISTRICT OF CALIFORNIA
WESTERN DIVISION

OPLUS TECHNOLOGIES, LTD.,

Plaintiff,

v.

SEARS HOLDINGS CORPORATION
and VIZIO, INC.,

Defendants.

Case No. CV12-5707 MRP (E)

*Assigned to the Honorable Mariana R.
Pfaelzer*

**NOTICE OF AMENDED
INFRINGEMENT CONTENTIONS**

JURY TRIAL DEMANDED

1 Pursuant to the Court's June 7, 2013 Order (Dkt. 137), Plaintiff Oplus
2 Technologies, Ltd. hereby submits its Amended Infringement Contentions, which
3 are attached hereto as Exhibits A, B, C, and D.

4 Respectfully submitted,

5 /s/ Paul C. Gibbons

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Infringement Chart
U.S. Patent No. 7,271,840
Vizio Televisions or Displays with MediaTek MDDi Motion Adaptive Deinterlacing Technology

	<p>However, using the motion-adaptive de-interlacing method is the most efficient way to process interlaced to progressive conversion. The motion-adaptive de-interlacing method generally includes two steps. The first step involves processing motion detection, which means detecting a motion situation by checking a fix number of video fields of the interlaced video signal. Then, the second step involves selecting a proper interpolation algorithm according to the detected motion situation.</p> <p>Mediatek U.S. Patent No. 7,286,186 at Col. 1:48-56 (Ex. 16)</p> <p>Please note that, in considering the issue of infringement, the issue of an accused infringer's patent corresponding to its infringing product "warrants consideration by the trier of fact, along with the other evidence of the differences and similarities of the patented and accused devices[.]" <i>National Presto Industries, Inc. v. West Bend Co.</i>, 76 F.3d 1185, 1191 –92 (Fed. Cir. 1996). While Mediatek admittedly has many patents, its descriptions in the available literature to its patent-pending MDDi "de-interlacing" solution (with some Mediatek references to such technology going back to the 2003 time frame) drastically narrows the list. Specifically, per Lexis, only 5 issued US patents assigned to Mediatek were filed in 2003 or earlier which use the word "de-interlacing."</p> <p>See also Exhibit 8, pp. 21, 26, 50, 52; Exhibit 9, pp. 26, 29, Exhibit 10, pp. 38, 43, 59, 61; Exhibit 11, pp. 34, 39, 55, 57</p>
assigning and characterizing a local neighborhood of neighboring pixels to each input image pixel of the streaming digital video image input signal, in a temporal interlaced sequence of three consecutive fields in a global input grid of pixels	<p>The streaming digital video image input signal received by the Vizio televisions contains pixels. MDDi 3:2 deinterlacing requires 3 fields commonly referred to in the art as the current, previous, and next fields.</p> <p>MDDi operates to assign and characterize a local neighborhood of neighboring pixels for each input image pixel of an image in a temporal interlace sequence of the three consecutive fields in a global input grid of pixels included in the streaming digital video input image signal.</p>

Exhibit B

Infringement Chart
U.S. Patent No. 7,271,840

Vizio Televisions or Displays with MediaTek MDDi Motion Adaptive Deinterlacing Technology

included in the streaming digital video input image signal, said three consecutive fields being a previous field, a next field, and a current field; and	<p>However, using the motion-adaptive de-interlacing method is the most efficient way to process interlaced to progressive conversion. The motion-adaptive de-interlacing method generally includes two steps. The first step involves processing motion detection, which means detecting a motion situation by checking a fix number of video fields of the interlaced video signal. Then, the second step involves selecting a proper interpolation algorithm according to the detected motion situation.</p> <p>E.g., Mediatek U.S. Patent No. 7,286,186 at Col. 1:48-56 (Exhibit 16) See also Exhibit 8, pp. 21, 26, 50, 52; Exhibit 9, pp. 26, 29, Exhibit 10, pp. 38, 43, 59, 61; Exhibit 11, pp. 34, 39, 55, 57.</p>
determining the entropy of each virtual pixel, of each previous pixel, and of each next pixel, in said temporal interlaced sequence of said three consecutive fields, relative to said assigned and characterized local neighborhoods of said neighboring pixels, said determining comprising the steps of:	<p>This element requires the pixels of the temporal fields to be compared to detect pixels affected by noise, which is a form of video error that is based on the entropy of the data. The noise can for example result from a cadence error which results in moving (e.g. from different film frame) pixels being placed in the wrong temporal sequence. For purposes of explanation, a pixel which is temporally out of place will have a large difference as compared to its temporally neighboring pixels and thus a high entropy or randomness, which pixel may be considered to be noisy.</p> <p>In order to perform 3:2 deinterlacing, MDDI must determine the entropy of each virtual pixel and the previous and next pixel from the previous and next fields in order to know or estimate which of those pixels are obtained from or belong to the same input image frame.</p> <p>See Exhibit 8, pp. 21, 26, 50, 52; Exhibit 9, pp. 26, 29, Exhibit 10, pp. 38, 43, 59, 61; Exhibit 11, pp. 34, 39, 55, 57.</p>
calculating values of pixel inter-local neighborhood parameters for each said previous pixel in said previous field, and for each said next pixel in	<p>This necessarily requires the following steps, as set forth below.</p> <p>This element is the first step of the above “comprising” element, where the selected area of (i.e. inter-local neighborhood) the fields are compared, detecting the changes that occur between each and to create a weighted change between each. For purposes of understanding, the changes may be considered to be inter-local noise or randomness which may result, for</p>

Exhibit B

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Infringement Chart

U.S. Patent No. 6,239,842

Vizio Televisions or Displays with MediaTek MDDi Motion Adaptive Deinterlacing technology

Vizio has infringed claims 7, 8, 9, 14, and 15 of U.S. Patent No. 6,239,842 (“the ‘842 patent”) within the meaning of 35 U.S.C. 271(a) by using televisions or displays incorporating MediaTek MDDi Motion Adaptive Deinterlacing technology, including at least Vizio’s L42HDTV10A, GV42L, VW46L FHDTV10A, L37HDTV, P42HDTV10A, VX32L, VW32L, and VX37L televisions (e.g. MediaTek MT535X, MT538X and MT820X video signal processing chips with MDDi).

As described, Vizio also induces and contributes to infringement within the meaning of 35 U.S.C. 271(b) and 35 U.S.C. 271(c), wherein the direct infringement is performed by the end users of the accused Vizio televisions.

On information and belief, many more Vizio televisions than those listed above incorporate MediaTek MDDi Motion Adaptive Deinterlacing technology. This claim chart is meant to be exemplary of infringement by any Vizio television incorporating MDDi Motion Adaptive Deinterlacing technology. Oplus reserves the right to add additional claims and/or products.

This chart refers to service manuals for the representative Vizio TVs, e.g. VW46L FHDTV10A service manual PDF pages 25-29, (Exhibit 9); L42HDTV10A/GV42L service manual PDF pages 20-26, 50, (Exhibit 8); L37HDTV service manual PDF pages 30-32, 37-43 (Exhibit 10), P42HDTV10A service manual PDF pages 25-28, 33-34, (Exhibit 11). The service manual for Vizio’s VX32L and VW32L televisions is available at: http://www.smarthelpcenter.com/manuals/Vizio/VIZIO_VX32L_VW32L_HDTV20A_AUO_LPL_Samsung_Service_Manual_C.pdf The service manual for the VX37L televisions is available at: http://www.smarthelpcenter.com/manuals/Vizio/VIZIO_VX37LHDTV10A_Service_Manual_C.pdf

Evidence of Vizio’s use of the accused television models can be found within the deposition of Ken Lowe (May 10, 2013); as well as at the following links: http://cnettv.cnet.com/vizio-vp504f/9742-1_53-31953.html; and <http://www.businesswire.com/news/home/20080107005370/en/Eleven-Products-CES-2008-Feature-Silicon-Optix>

Claim	Infringement by Vizio Televisions Incorporating MDDi
Claim 7 A method for de-interlacing an interlaced video format, the method comprising the steps of:	Vizio televisions with MDDi use that technology to give them an advantage in video quality and in particular an advantage in deinterlacing and displaying interlaced video signals as a high definition signal. All Vizio flat panel (e.g. HDTV) televisions must deinterlace received interlaced video signal

Infringement Chart
U.S. Patent No. 6,239,842
Vizio Televisions or Displays with MediaTek MDDi Motion Adaptive Deinterlacing technology

<p>minimums of said standard deviations of said known values of said spatial pixels, absolute values of differences between said averages of said known values of said temporal pixels and said known values of said spatial pixels, and a plurality of constants, said logical operations selected from the group consisting of greater than, greater than or equal to, less than, less than or equal to, 'and', 'or', and 'xor'; and</p>	<p>The MDDi algorithm is a motion adaptive de-interlacer. (e.g. Exhibit 8, p. 26; Exhibit 9, p. 29; Exhibit 10, p. 38 and 43; Exhibit 11, p. 34). See also, e.g., MediaTek U.S. Patent No. 7,286,186 at Col. 1:48-56 (Exhibit 16):</p> <p style="padding-left: 40px;">However, using the motion-adaptive de-interlacing method is the most efficient way to process interlaced to progressive conversion. The motion-adaptive de-interlacing method generally includes two steps. The first step involves processing motion detection, which means detecting a motion situation by checking a fix number of video fields of the interlaced video signal. Then, the second step involves selecting a proper interpolation algorithm according to the detected motion situation.</p> <p>The MDDi algorithm analyzes pixels from multiple fields, comparing values of pixels at similar spatial locations but different times, and makes interpolations using averages of known values. Thus, logical operations are evaluated of linear combinations of values selected from the group consisting of averages of said known values of said spatial pixels, averages of said known values of temporal pixels, standard deviations of said known values of said spatial pixels, standard deviations of said known values of said temporal pixels, minimums of said standard deviations of said known values of said spatial pixels, absolute values of differences between said averages of said known values of said temporal pixels and said known values of said spatial pixels, said known values of said spatial pixels, and a plurality of constants.</p>
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(12) **United States Patent**
Lee

(10) **Patent No.:** **US 7,286,186 B2**
(45) **Date of Patent:** **Oct. 23, 2007**

(54) **SCALABLE VIDEO FORMAT CONVERSION SYSTEM**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 513 days.

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H04N 7/01 (2006.01)

(52) **U.S. Cl.** **348/452; 348/448**

(58) **Field of Classification Search** 348/441,
348/452, 451, 448, 459, 699, 700, 581, 554,
348/555

See application file for complete search history.

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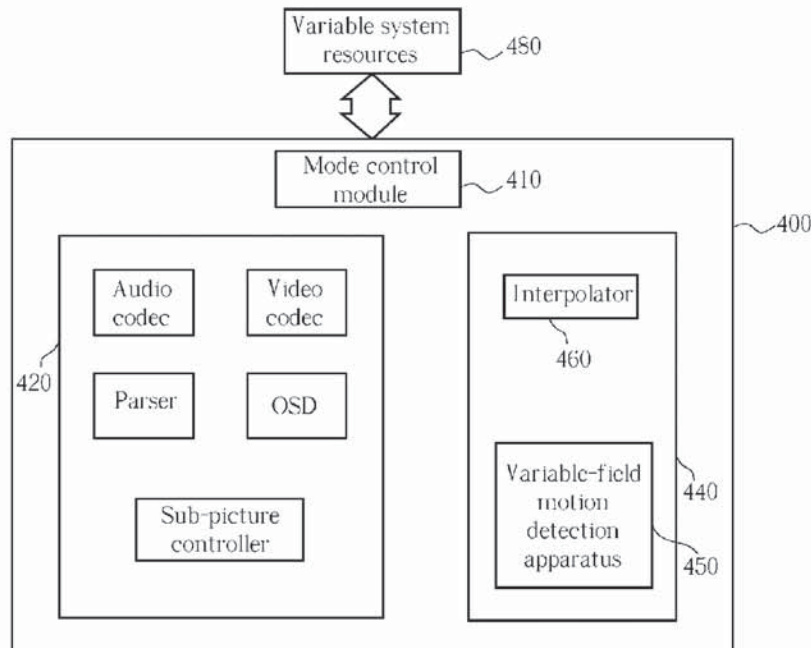
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(57) **ABSTRACT**

The present invention discloses a scalable video format conversion system, which utilizes a plurality of system resources to convert an interlaced video signal into a progressive video signal. The disclosed scalable video format conversion system contains a scalable motion-adaptive de-interlacing system and a mode control module. The mode control module determines a detection number dynamically according to the availability of the system resources and/or the status of the scalable video format conversion system. A variable-field motion detection apparatus of the scalable motion-adaptive de-interlacing system accesses a plurality of video fields to detect a motion situation of an image area, wherein the number of the plurality of accessed video is equal to the detection number determined by the mode control module. Then, the scalable motion-adaptive de-interlacing system choose a proper de-interlacing algorithm according to the detected motion situation, to convert the interlaced video signal into the progressive video signal.

12 Claims, 9 Drawing Sheets



US 7,286,186 B2

5

system 400 shows that there are still abundant system resources for the scalable motion-adaptive de-interlacing system 440 to use, the mode control module 410 could set the detection number larger. When the status of the scalable video format conversion system 400 shows that there are only sparse system resources left for the scalable motion-adaptive de-interlacing system 440 to use, the mode control module 410 could set the detection number smaller.

The above-mentioned "user-selectable operation mode" could be a Letterbox mode, Pan-scan mode, PAL-to-NTSC conversion mode, NTSC-to-PAL conversion mode, zoom in mode or zoom out mode, etc. Each specific operation mode could corresponds to a specific detection number. It is also noted that the modes shown in FIG. 7 are only illustrative and not limiting.

In addition to FIG. 4, the mode control module 410 can also be implemented inside a memory controller (not shown in FIG. 4) of the scalable video format conversion system 400, to dynamically adjust the detection number according to the bandwidth workload of the memory controller. When the memory controller has a smaller bandwidth workload, the mode control module could set the detection number larger. When the memory controller has a larger bandwidth workload, the mode control module could set the detection number smaller.

As mentioned above, rather than containing five motion detectors as shown in the embodiment of FIG. 5, the variable-field motion detection apparatus 450 could also handle motion detection process with different numbers of video fields by itself. FIG. 8 shows a second embodiment of a variable-field motion detection apparatus 800 according to the present invention. The variable-field motion detection apparatus 800 processes motion detection process by accessing a plurality of video fields of an interlaced video signal to determine the motion situation of an image area. In this embodiment, the variable-field motion detection apparatus 800 comprises six pixel difference circuits 810a-f, a decision circuit 890, and six multiplexers 850a-f. As a whole, the multiplexers 850a-f could be regarded as a field-number adjuster. Each one of the pixel difference circuits 810a-f computes the pixel value difference between a point on two different video fields and generates a detection value as a result. Referencing the example shown in FIG. 3, in this embodiment the inputs of the pixel difference circuits 810a-f are pixel values of points A, B, C, D, E, F, G, H, I shown in FIG. 3. Each of the pixel difference circuits 810a-f contains a subtracter 820a-f and an absolute value circuit 830a-f, which can be used to compute the absolute value of the difference between two pixel values. After a detection value of a pixel difference circuit passes through a corresponding multiplexer, a corresponding comparator will compare the detection value with a predetermined threshold, then generates a boolean value as a result. Please note that the predetermined thresholds used by the comparators 860a-f could have a common value or have different values. A logic OR operation is then preformed on these boolean values BLA-f to generate the motion detection result. In the above mentioned situation, the variable-field motion detection apparatus 800 can be regarded as a 6-field motion detector.

However, 6-field motion detection is not necessary at all times. Hence the field-number adjuster can dynamically adjust the number of video fields used in motion detection process. For example, when 5-field motion detection is applied by the system, the value inputted to the comparator 860f will be set to '0' by the multiplexer 850f (which is part of the field-number adjuster). In this way, the T-3 field in FIG. 3 will have no influence on the motion detection result.

6

When 4-field motion detection is applied by the system, the values inputted to comparators 860f, 860e, and 860d will be set to '0' by the multiplexers 850f, 850e, and 850d (which are all parts of the field-number adjuster). In this way, the T-3 and T+2 fields in FIG. 3 will have no influence on the motion detection result. Hence, it can be seen that by switching the multiplexers 850a-e properly, the variable-field motion detection apparatus 800 could adjust the number of video fields used in motion detection process dynamically. Please note that, setting the values inputted to the comparators 860a-e to '0' by properly switching the multiplexers 850a-f is just an example. To adjust the number of video fields used in motion detection process, each value inputted to a comparator in FIG. 8 could also be set to any value smaller the threshold used by a corresponding comparator.

In addition, rather than being located between the pixel difference circuits 810a-f and the comparators 860a-f, the field-number adjuster (which includes the multiplexers 850a-f in FIG. 8 in this embodiment) could also be located between the comparators 860a-f and the logic OR circuit 870 to set some of the boolean values BLA-f to zero; or be located in front of the pixel difference circuits 810a-f to set some output end pairs to the same value. Above are some possible implementations of the field-number adjuster.

Sometimes motion detection with few number of video fields used will not be able to detect fast moving objects. In this situation the edges of a fast moving object might appear as ragged sawtooths rather than smooth curves. To solve this problem, the variable-field motion detection apparatus 800 of the present invention can also operate in conjunction with a mouse teeth detector (also called a sawtooth detector), as shown in FIG. 8, to prevent ragged sawtooths from appearing. For more details on sawtooth detectors, please refer to U.S. Pat. No. 5,625,421.

FIG. 9 shows a third embodiment of a variable-field motion detection apparatus 900 according to the present invention. The main difference between the variable-field motion detection apparatuses 900 and 800 is that the select module 960 of decision circuit 990 selects a largest detection value output by the pixel difference circuits 910a-f. The comparator 970 can then compare the largest detection value with a predetermined threshold to get the final motion detection result. The multiplexers 950a-f, which could be regarded as a field adjuster, set some detection values output by the pixel difference circuits 910a-f to zero (or another value smaller than the predetermined threshold). Hence dynamically adjusting the used field number can be achieved. Please note that, rather than being located between the pixel difference circuits 910a-f and the select module 960, the field-number adjuster (which includes multiplexers 950a-f in this embodiment) could also be located in front of the pixel difference circuits 910a-f to set some input end pairs of some pixel difference circuits to the same value. For example, when the detection number is six, the field-number adjuster could pass pixel value on six different video fields to the inputs of the pixel difference circuits 910a-f. When the detection number is five, the field-number adjuster could set the two values inputted to the pixel difference circuits 910f as the same value, at this time only five video fields will affect the motion detection result. When the detection number is four, the field-number adjuster could set the two values inputted to the pixel difference circuits 910f as the same value, set the two values inputted to the pixel difference circuits 910e as the same value, and set the two values inputted to the pixel difference circuits 910d as the same value, at this time only four video fields will affect the

A007954

A DEINTERLACER FOR IQTV RECEIVERS AND MULTIMEDIA APPLICATIONS

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ABSTRACT — A deinterlacer suitable for IQTV receivers and multimedia applications is presented. The processing is based on a hierarchical motion adaptive filtering. The algorithm is synthesized through VHDL into FPGA components and in a single programmable ASIC.

INTRODUCTION

The video signal presently received by a standard TV set comprises several artifacts produced by its interlaced sampling structure, the PAL coding, and the transmission system. To reduce these problems and to provide better quality pictures, various digital signal processing techniques suitable to cost-effective consumer applications have been developed [1]. Their target is to get a remarkable improvement in picture quality at a low cost and in a short time; this can only be possible with simple but effective algorithms (see, e.g., [2] [3] [4]), with an optimized design flow and a silicon technology suitable for ASIC developments.

In this paper, we present the structure and realization of an algorithm capable of converting an image sequence from interlaced to progressive format. The proposed method effectively copes with the motion present in the scene: it performs a local interpolation using data lying along an estimated direction of motion.

THE ALGORITHM

Motion compensated filtering [5] [6] [7] can solve the problems generated by the interlaced sampling of the video signal (i.e., interline flicker, line crawl, vertical aliasing); however, motion estimation techniques are very critical and expensive. If no motion information is transmitted, motion can only be detected locally by the receiver. In this case, the hardware complexity has to be low in order to control the receiver cost.

This is the approach followed in the present paper. In our solution, a hierarchical method is proposed, using a simple motion detector and a planar filter which performs spatial interpolation according to the direction of highest correlation.

More in detail, the interpolation process is composed of the following steps. With reference to Fig. 1, we shall indicate with capital letters the pixels, and with italics capital letters their corresponding grey level. X is the pixel being interpolated.

First, the possible presence of motion is analyzed. To this purpose, we evaluate the absolute differences both between homologous pixels belonging to adjacent fields, and between pixels lying in the present field: this approach avoids errors due to the so-called "image flow" effect. When no motion is detected, the interpolation is performed by a simple symmetrical temporal holder. More precisely, the missing pixel is evaluated as follows:

$$\text{if } \left[(|V - W| < h_1) \text{ and } \left(\left| \frac{V+W}{2} - \frac{B+E}{2} \right| < h_2 \right) \right]$$

$$\text{then } X = \frac{V+W}{2}$$

where h_1 and h_2 are two suitable thresholds. The first one is rather low (typically, 16), and is intended to verify whether exactly the same pixel of an object is found in two different fields, while the second one, which is higher (e.g., 40), is used to check possible correlations between pixels belonging to the same field. In particular, this formulation allows one to exclude that an object different from the one present in V and W is swiftly passing through the present field.

If motion is found, spatial filtering is applied, so that only the present field is considered. In this case, it is important to be able to avoid the smearing of the borders of the objects possibly present in the proximity of X . We

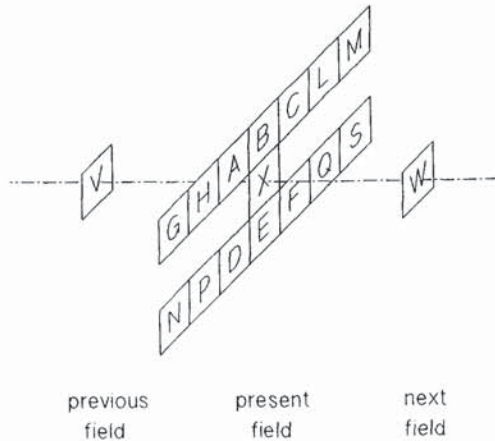


Figure 1: Pixels considered for the interpolation of the pixel X belonging to a missing line.

keep the blurring low by performing the interpolation along a direction of high correlation of the luminance data.

First, correlations are searched in a small (3×3) window centered in X; a significant correlation is said to be found between two pixels when the absolute difference of their grey levels takes a value below the threshold h_2 . The presence of correlation may indicate the presence of an edge or a line, in which case a linear interpolation is performed along its direction. However, due to the small window dimensions, only slopes of at least 45 deg can be taken into account. When the presence of an edge or a thin line with slope lower than 45 deg is suspected, the analysis is extended to a 7×3 window always centered in X; also in this case, linear interpolation is performed along the direction of the found edge or line. A fall-back mode, in which a simple vertical FIR filter is used (i.e., $X = (B + E)/2$), is also considered for critical cases. In the following, the algorithm used in case of motion is described in detail.

As already explained, first a 3×3 window is considered (i.e., the pixels A, B, C, D, E, and F), and various situations are verified.

- The presence of a vertical border or line is detected when the couples BE and AD or BE and CF are correlated; in this case, a vertical filter is used. E.g.:

$$\text{if } [(|B - E| < h_2) \text{ and } (|A - D| < h_2)]$$

$$\text{then } X = \frac{B + E}{2}$$

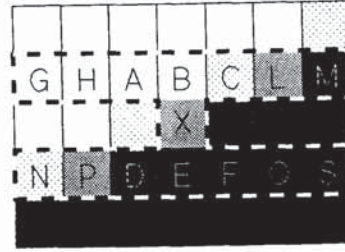


Figure 2: Example of blurred edge with slope lower than 45 deg.

It has to be noted that, in principle, only the correlation of the pixels B and E could be verified in this case; however, taking into account two couples (with the same orientation) instead of one increases the robustness of the detection with respect to the noise in the image. This approach is also followed, whenever possible, in the rest of the algorithm.

- A border with an inclination of 64 deg with respect to the horizontal is supposed to be present if both the couples BD and CE (or, symmetrically, AE and BF) are correlated; in this case, $(B + C + D + E)/4$. This case also applies to (real) smooth moving edges, the smoothness being due for example to the temporal integration effect present in the video-camera.

Then, the couples AF, BE, and CD are considered, in order to detect the presence of less steep borders or lines. The number of correlated couples is evaluated; then we proceed as following:

- Zero correlations: an edge with slope lower than 45 deg is expected to be present; a possible situation is depicted in Fig. 2.

In this case, the analysis is extended to the 7×3 window, and several correlations relating to the pixels G, H, L, M, N, P, Q, and S are evaluated. If one correlated couple is found, then an interpolation is performed along its direction. More precisely, we may consider the following cases (together with the symmetrical ones):

- if LD and CP are correlated, then the slope is 34 deg and $X = (C + P + D + L)/4$;
- if LP and MD or LP and CN are correlated, then the slope is 27 deg and $X = (L + P)/2$ (this is the case depicted in Fig. 2);
- if MP and LN are correlated, then the slope is 22 deg and $X = (L + M + N + P)/4$.

(12) **United States Patent**
Cooper

(10) **Patent No.:** **US 6,529,637 B1**
(45) **Date of Patent:** ***Mar. 4, 2003**

(54) **SPATIAL SCAN REPLICATION CIRCUIT**

(75) Inventor: **Carl Cooper**, Monte Sereno, CA (US)

(73) Assignees: **Pixel Instruments Corporation**, Los Gatos, CA (US); **IP Innovation LLC**, Northbrook, IL (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **08/398,383**

(22) Filed: **Mar. 3, 1995**

Related U.S. Application Data

(63) Continuation-in-part of application No. 08/119,610, filed on Sep. 13, 1993, now Pat. No. 5,424,780, which is a continuation of application No. 07/355,461, filed on May 22, 1989, now abandoned.

(51) Int. Cl.⁷ **G06K 9/40; H04N 5/21**

(52) U.S. Cl. **382/267; 382/269; 382/275; 348/607; 348/625**

(58) Field of Search **382/267, 269, 382/275, 308, 254; 348/616, 245, 246, 248, 428.1, 458, 625, 607**

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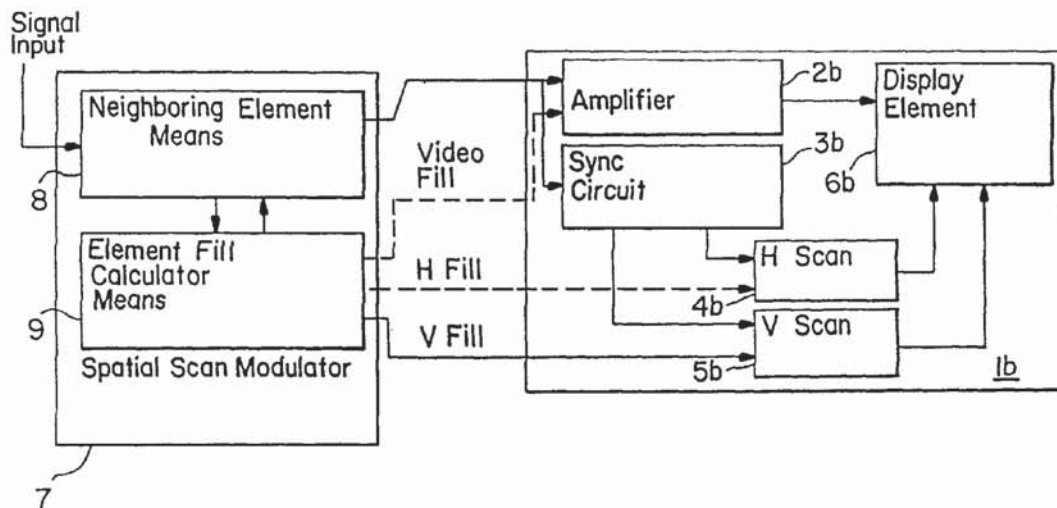
Primary Examiner—Bhavesh Mehta

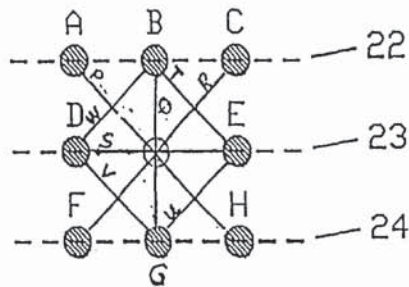
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(57) **ABSTRACT**

In an image replication circuit, the improvement of replicating a given element at a certain location with the most similar of surrounding sets of image elements.

215 Claims, 5 Drawing Sheets





X FILL
DIRECTION(S) :

VERT. IF	$|B-G| < |A-H| \text{ or } |C-F| \text{ or } |D-E| \text{ or } |B-E| \text{ or } |E-G| \text{ or } |G-D| \text{ or } |D-B|$
HORIZ. IF	$|D-E| < |B-G| \text{ or } |A-H| \text{ or } |C-F| \text{ or } |B-E| \text{ or } |E-G| \text{ or } |G-D| \text{ or } |D-B|$
R. DIAG. IF	$|C-F| < |B-G| \text{ or } |A-H| \text{ or } |D-E| \text{ or } |B-E| \text{ or } |E-G| \text{ or } |G-D| \text{ or } |D-B|$
L. DIAG. IF	$|A-H| < |B-G| \text{ or } |C-F| \text{ or } |D-E| \text{ or } |B-E| \text{ or } |E-G| \text{ or } |G-D| \text{ or } |D-B|$
U. LEFT IF	$|D-B| < |B-E| \text{ or } |E-G| \text{ or } |G-D| \text{ or } |B-G| \text{ or } |A-H| \text{ or } |C-F| \text{ or } |D-E|$
U. RIGHT IF	$|B-E| < |E-G| \text{ or } |G-D| \text{ or } |D-B| \text{ or } |B-G| \text{ or } |A-H| \text{ or } |C-F| \text{ or } |D-E|$
L. LEFT IF	$ E-G < G-D \text{ or } D-B \text{ or } B-E \text{ or } B-G \text{ or } A-H \text{ or } C-F \text{ or } D-E $
L. RIGHT IF	$ G-D < D-B \text{ or } B-E \text{ or } E-G \text{ or } B-G \text{ or } A-H \text{ or } C-F \text{ or } D-E $

FIGURE 7

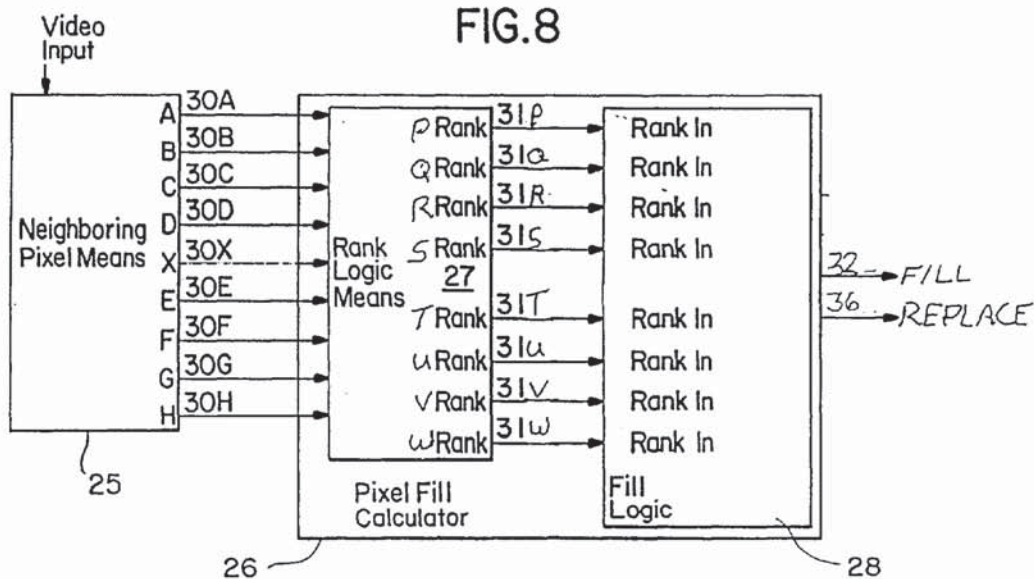
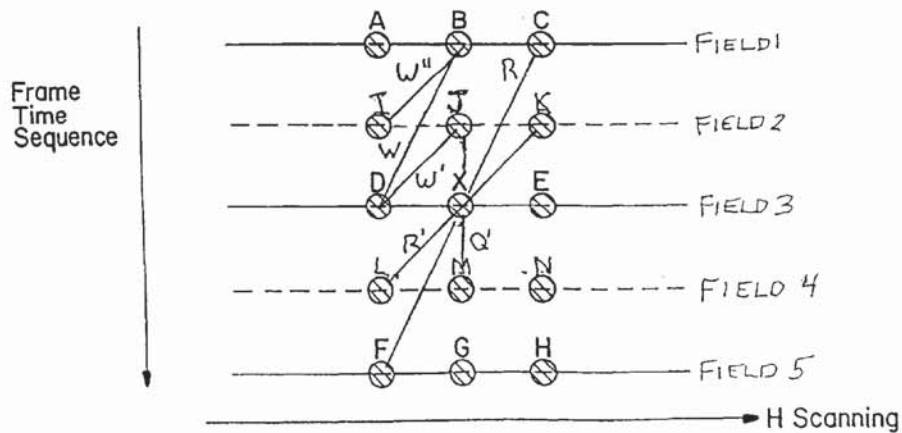


FIG.9



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12 *Oplus Technologies, Ltd.*

13 IN THE UNITED STATES DISTRICT COURT
FOR THE CENTRAL DISTRICT OF CALIFORNIA
14 WESTERN DIVISION

15 OPLUS TECHNOLOGIES, LTD.,

16 Plaintiff,

17 v.

18 SEARS HOLDINGS CORPORATION
19 and VIZIO, INC.,

20 Defendants.

Case No. CV12-5707 MRP (E)

*Assigned to the Honorable Mariana R.
Pfaelzer*

**EXPERT REPORT OF J. CARL
COOPER**

1 said spatial pixels (it is not a minimum or standard deviation), absolute values of
2 differences between said averages of said known values of said temporal pixels
3 and said known values of said spatial pixels (it is not an average), said known
4 values of said spatial pixels (it does not use spatial pixels), and a plurality of
5 constants (it does not use a plurality of constants), which would be necessary to
6 provide the claimed “evaluating logical operations of linear combinations of
7 values”.

8 51. $|V - W|$ is the absolute value of a difference between the values of
9 temporal pixels. Neither the values of temporal pixels, nor the absolute value of the
10 difference between the values of temporal pixels, is a member of the Markush
11 group. Thus, the disclosure of the interpolation process on page 234 of Simonetti is
12 not a disclosure of evaluating logical operations of linear combinations in which
13 the values are selected from the Markush group.

14 52. The equation disclosed on p. 235 of Simonetti, $(|B - E| < h_2)$ and
15 $(|A - D| < h_2)$, is likewise not a disclosure of the evaluation of logical operations
16 of linear combinations of values selected from the Markush group. Both of the
17 linear combinations disclosed therein include a value which is the absolute value of
18 the difference between spatial pixels. Specifically, A, B, D, and E, all represent
19 spatial pixels. It must be noted that the absolute value of the difference between
20 spatial pixels, is by definition, a particular value in its own right. The absolute
21 value of the difference between the values of two spatial pixels is not necessarily
22 equivalent to the difference between those two pixels. The absolute value of the
23 difference between two spatial pixels is not one of the members of the Markush

group. Thus, the aforementioned equation disclosed on p. 235 of Simonetti is not a disclosure of evaluating logical operations of linear combinations of values selected from the Markush group of claims 7 and 14.

53. The disclosure on p. 235 of Simonetti of $(B+C+D+E)/4$ is not relevant to the asserted claims. It is used to calculate the inclination of a border, not for “deciding upon assignment of values to missing spatial pixels according to results of said logical operations,” as required by claims 7 and 14.

54. The disclosures on p. 235-36 of Simonetti of:

- $X=(C+P+D+L)/4$
- $X=(L+P)/2$
- $X=(L+M+N+P)/4$
- $X=(M+N)/2$

are irrelevant because none of these equations involve the logical operators recited in claims 7 or 14.

55. The disclosure on p. 236 of Simonetti of: $|F - Q| + |Q - S| < h2 < |N-P| + |P-D|$ is irrelevant because it includes as values, the absolute values of the differences between spatial pixels. As explained above, such values are not part of the Markush group.

56. The disclosure on p. 236 of Simonetti of $\frac{B+2x+E}{4}$ is irrelevant because it does not include any of the logical operators recited in claims 7 or 14, and includes the missing pixel itself as a value, which is not a member of the Markush group.

1 said spatial pixels, said known values of said spatial pixels, and a plurality of
2 constants, said logical operations selected from the group consisting of greater
3 than, greater than or equal to, less than, less than or equal to, 'and', 'or', and
4 'xor'."

5 88. Figure 7 does not illustrate logical operations on linear combinations
6 of values selected from the Markush group. Specifically, the logical operations in
7 Figure 7 are performed on the absolute values of the difference between two spatial
8 pixels. As explained above, the absolute value of the difference between two
9 spatial pixels is not part of the Markush group. Notably, the absolute value of
10 differences between the value of spatial and temporal pixels is also not part of the
11 Markush group, although there is a Markush element dealing with the absolute
12 value of differences of averages of spatial and temporal pixels.

13 89. Dr. Hemami also points to Figure 9. Cooper states at Col. 17:41-47,
14 "FIG. 12 shows as an alternate embodiment of the video fill and D-A converter 35
15 of FIG. 10 in applications depicted by FIG. 9. The function of the preferred
16 embodiment described with respect to FIG. 12 is to generate a fill element which is
17 similar or equivalent to element X. This embodiment of FIG. 12 generates a fill
18 element, for use as element X of FIG. 7 or 9, in response to the video fill or
19 replication signal from FIG. 11." Fig. 11 shows a rank logic circuit 27 which
20 performs logical operations on the absolute values of pairs of pixels A through H
21 of Fig. 10 and shown graphically in Figs. 7 & 9. Note it is not the absolute values
22 of averages of pixels, as mentioned above. The pairs used in Fig. 11 are A-H, B-G,
23 C-F, D-E, B-E, E-G, G-D, D-B. Importantly, when the missing pixel to be created

1 is X all of the differences are taken from temporal pixels. None of the absolute
2 values of the differences are part of the Markush group.

3 90. Dr. Hemami's contention that it would have been obvious to modify
4 Cooper to perform the claimed methods is false. Cooper contemplates using the
5 absolute value of differences of pixel pairs, but this is not part of the Markush
6 group. It would not have been obvious to modify Cooper to use values from the
7 Markush group instead.

8 91. Cooper does not disclose the evaluation of logical operations of linear
9 combinations of values selected from the Markush group of claims 7 and 14.

10 92. It is thus my opinion that Cooper does not anticipate claims 7 and 14
11 of the '842 patent.

12 93. Because claims 8 and 9 are dependent on claim 7, they are likewise
13 not anticipated by Cooper.

14 94. Because claim 15 is dependent on claim 14, it is likewise not
15 anticipated by Cooper.

16 **F. Kovacevic, U.S. Patent No. 5,661,525 ("Kovacevic") in view of**
17 **Markandey or Rabii**

18 95. It is my opinion that claims 7-9 and 14-15 of the '842 Patent are not
19 invalid as anticipated by Kovacevic. Kovacevic does not disclose all of the
20 required limitations of the asserted claims.

21 96. It is additionally my opinion that claims 7-9 and 14-15 of the '842
22 Patent are not obvious over Kovacevic in view of Markandey or Rabii. As
23 discussed within this report, each of these references is missing at least one
24

Page 1

IN THE UNITED STATES DISTRICT COURT
FOR THE CENTRAL DISTRICT OF CALIFORNIA
WESTERN DIVISION

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OPLUS TECHNOLOGIES, LTD.,)
)
Plaintiff,)
)
vs.) Case No.
) CV12-5707 MRP (E)
SEARS HOLDINGS CORPORATION)
and VIZIO, INC.,)
)
Defendants.)
)

DEPOSITION OF J. CARL COOPER
Friday, August 9, 2013
Incline Village, Nevada

Job No. CS1704372

REPORTED BY: SUSAN E. BELINGHERI, CCR #655

Veritext Corporate Services

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A007992

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25

1 case? I'm not sure I understand. Are you talking about
2 globally?

3 Q. In order to implement a motion adaptive
4 de-interlacing technique, would it be necessary to
5 evaluate logical operations of the linear combinations
6 of values in that Markush group?

7 A. Just generally or, or to implement the claimed
8 operation?

9 Q. No. Generally.

10 A. Generally? No, I don't think so.

11 Q. Okay. So, for example, you could perform motion
12 adaptive de-interlacing by looking at linear
13 combinations of absolute values of temporal pixels,
14 right?

15 A. Generally there are lots of different ways of, of
16 performing that that might work to some extent. I'm not
17 sure I know all of them, but I can think of, of some
18 de-interlacing that wouldn't do any of that.

19 Q. I'm talking about motion adaptive de-interlacing.

20 A. Yeah, motion adaptive de-interlacing.

21 Q. When you say that wouldn't do that, you mean
22 evaluate the logical operations of linear combinations
23 of values in the '842 claims?

24 A. Right. But that's in the global universe of
25 de-interlacing and not specific to the patents or

1 would be the difference between the pixel values for
2 points C and D?

3 A. Correct.

4 Q. So the output of the subtracter 820a would be
5 the, a difference between two temporal pixel values?

6 A. Correct.

7 Q. And the output from 820b would be the difference
8 between a spatial pixel value and a temporal pixel
9 value.

10 A. Yes.

11 Q. And the output of subtracter 820c would be the
12 difference between a spatial pixel value and a temporal
13 pixel value.

14 A. Yes, if you're not taking into account the
15 position in the image.

16 Q. What does that mean?

17 A. Well -- you're referring to 820c, right?

18 Q. I am.

19 A. Okay. And it's E and F. And they are in the
20 same, they represent the value at the same point in the
21 fields T and T-2. T-2 might have a different, that
22 point might represent a different part of the image as
23 compared to field T, T-2 might, but it's the same point
24 in the field.

25 Q. So is -- okay. And I heard that. The output

1 from 820c is not necessarily the difference between the
2 spatial pixel value and the temporal pixel value?

3 A. No, I believe, I believe that it is.

4 Q. Okay. All right. And then let's look at 820e.
5 That's the difference between a spatial pixel value and
6 a temporal pixel value, right?

7 A. Yes.

8 Q. And then 820f, the output of that is the
9 difference between temporal pixel values.

10 A. If temporal pixel values means values within
11 temporal pixels -- or I'm sorry, temporal fields where
12 one of the fields is not adjacent, yes.

13 Q. Okay. Now, if you look at, back at column five
14 again, look at lines 46 to 49. And I will read that to
15 you. It says:

16 Each of the pixel difference circuits 810a-f
17 contains a subtracter 820a-f and an absolute value
18 circuit 830a-f, which can be used to compute the
19 absolute value of the difference between two pixel
20 values.

21 Did I read that correctly?

22 A. Yes.

23 Q. Okay. So if we look at Figure 8, you see a
24 series of triangles labeled 830a through 830f as you go
25 vertical down the page?

1 A. Yes.

2 Q. All right. The output of those vertical
3 triangles are absolute values, right?

4 A. Correct.

5 Q. So they're absolute values of pixel differences.

6 A. Correct.

7 Q. And so that, none of those outputs could be
8 within the Markush group of linear combinations of
9 values from the '842 Patent claims; is that right?

10 A. I'd have to review the group. I don't have them
11 committed to memory.

12 Q. I think you have the exhibit. Exhibit 36.

13 A. Oh, '842. I'm sorry.

14 Q. It's in your hand.

15 A. Oh, okay. And what was the question again?

16 Q. None of the outputs from 830a through 830f in
17 Figure 8 are linear combinations of values within the
18 claims of the '842 Patent.

19 A. I believe that is correct, they're not. The only
20 absolute value in the Markush group deals with averages,
21 and these are not averages.

22 Q. Let's take a look at the Markush groups from the
23 '842 Patent.

24 A. Okay.

25 Q. Let's look at, for example, claim seven, just to

1 it's important for format conversion, to change the
2 number of lines in the field, or lines in the frame.
3 And generally it's desirable to have smooth motion
4 displayed on a consumer television set, even in the
5 presence of an error.

6 Q. Are you familiar with techniques for determining
7 whether an interlaced video was generated by a 3:2 pull
8 down process from a film source?

9 A. Generally, yes. I don't have any specific ones
10 in mind, but that's been around for awhile.

11 Q. And is it your opinion that those techniques all
12 require the performance of the method of claim 56 of the
13 '840 Patent?

14 A. No.

15 Q. That's not your opinion?

16 A. It's not my opinion. I haven't really looked at
17 all of them. You said those techniques. Well, I assume
18 you mean all of them, so --

19 Q. Well, when you see -- let me ask it this way:
20 When you see the phrase 3:2 pull down --

21 A. Okay.

22 Q. -- does that connote to you the performance of
23 the steps in claim 56 of the '840 Patent?

24 A. Not in and of itself, no.

25 Q. How about 3:2 pull down detection, when you see

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1 
J. CARL COOPER

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9 Subscribed and sworn to before me
this 12TH day of Sept. 2013.



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16 IN THE UNITED STATES DISTRICT COURT
17 FOR THE CENTRAL DISTRICT OF CALIFORNIA
WESTERN DIVISION

18 OPLUS TECHNOLOGIES, LTD.,

19 Plaintiff,

20 v.

21 SEARS HOLDINGS CORPORATION
22 and VIZIO, INC.,

23 Defendants.

Case No. CV12-5707 MRP (E)

*Assigned to the Honorable Mariana R.
Pfaelzer*

**DECLARATION OF RICHARD
FERRARO IN SUPPORT OF
PLAINTIFF'S RESPONSE TO
DEFENDANT'S MOTION FOR
SUMMARY JUDGMENT OF
INVALIDITY**

24 Date: February 27, 2013
25 Time: 11:00 a.m.
Place: Courtroom 12

- (i) $\text{Sigma} \leq (K0 + \text{Min-Sigma})$, where $-C0 \leq K0 < C0$, or
- (ii) $\text{Min-Sigma} \geq (W - K1)$, where $-C1 \leq K1 < C1$, or
- (iii) $\text{abs}(mT - x1) < A1$, or (iv) $\text{abs}(mT - x2) < A2$, or
- (v) $\text{abs}(mT - x3) < A3$, or (vi) $\text{abs}(mT - x4) < A4$, or
- (vii) $\text{abs}(mT - x5) < A5$, or (viii) $\text{abs}(mT - x6) < A6$, or
- (ix) $mT \leq (B + K2)$, where $-C2 \leq K2 < C2$, or
- (x) $[(\text{Previous-Result}) - nT \leq A6]$ and $[mT \geq W - A7]$, [e.g., '842 Patent, Fig. 5/2 step 10.]

30. I do not agree with Dr. Hemami's conclusion regarding statements (ii)-(viii) and whether they form linear combinations from the $\text{abs}(mT - xi)$ expression for a few reasons. [Hemami Dec., ¶25] First, Dr. Hemami identifies statements (ii)-(viii) but statement (ii) does not contain the $\text{abs}(mT - xi)$ expression nor is there any statement (ix). Statements (iii) through (viii) do contain the $\text{abs}(mT - xi)$ expression. Second, these statements (iii) through (viii) that contain the $\text{abs}(mT - xi)$ expression do form linear combination from the $\text{abs}(mT - xi)$ expression. For example, in the inequality equation $\text{abs}(mT - x3) < A3$; the left side is a linear combination comprising $\text{abs}(mT - x3)$. Further, the expression can be rewritten as $\text{abs}(mT - x3) - A3 < 0$ which shows again this expression does form linear combinations. [Hemami Dec., ¶25]

F. An absolute value of a linear combination is a linear combination

31. I disagree with Dr. Hemami's conclusion [Hemami Dec., ¶24] that "[a]n absolute value of a linear combination is not a linear combination." An absolute value of a linear combination can be viewed as a linear combination followed by an absolute value operator, in other words $z = |ax + by|$.

G. Claim 7 "deciding" step performs a modification to the image to be displayed

32. It is my opinion that claim 7 requires a manipulation of the video signals. A cornerstone of the '842 Patent is the manipulation of the video signal during the process of de-interlacing. Further, claim 7, as supported in the specification, recites exactly that – performing a manipulation of the video signal. This is recited in claim 7 as follows.

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IN THE UNITED STATES DISTRICT COURT
FOR THE CENTRAL DISTRICT OF CALIFORNIA
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OPLUS TECHNOLOGIES, LTD.,

Plaintiff,

v.

SEARS HOLDINGS CORPORATION
and VIZIO, INC.,

Defendants.

Case No. CV12-5707 MRP (Ex)

*Assigned to the Honorable Mariana R.
Pfaelzer*

**PLAINTIFF'S INITIAL
INFRINGEMENT CONTENTIONS**

JURY TRIAL DEMANDED

1 offering to sell in the United States and importing into the United States products
2 with video deinterlacing technology. The accused products further lack any
3 substantial noninfringing use.

4 Oplus reserves the right to amend these Initial Infringement Contentions.

5 Respectfully submitted,

6
7 /s/ Paul C. Gibbons
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EXHIBIT A
Infringement Chart
U.S. Patent No. 6,239,842
Vizio Televisions or Displays with HQV, Including VP505XVT, VP504F, and VP605F

Vizio (or its customers or retailers) have infringed claims 7, 8, 9, 14, 15 of U.S. Patent No. 6,239,842 (“the ‘842 patent”) within the meaning of 35 U.S.C. 271(a) by making, using, selling, offering for sale, or importing in to the United States televisions or displays incorporating HQV technology, including at least Vizio’s VP505XVT, VP504F, and VP605F. (See **Exhibits 2 and 6**). As described, Vizio also induces and contributes to infringement within the meaning of 35 U.S.C. 271(b) and 35 U.S.C. 271(c). See manuals for Vizio TVs, e.g. VP505XVT user manual pages, (**Exhibit 1**); VP504F user manual pages (**Exhibit 7**). This claim chart is meant to be exemplary of infringement by any Vizio television incorporating HQV technology. As discovery has just begun, Oplus reserves the right to add additional claims and/or products.

Claim	Infringement by Vizio Televisions or Displays Incorporating HQV
<p>Claim 7</p> <p>A method for de-interlacing an interlaced video format, the method comprising the steps of:</p>	<p>Vizio televisions with HQV, including Vizio’s VP505XVT televisions, make use of HQV technology to give them an advantage in video quality.</p> <p>From the Press Release accessed on 11-27-2011 and August 2, 2012 at http://www.noydcom.com/press_release/vizio/xvt/vizio_xvt_pr_FNL.pdf (Exhibit 2):</p> <p>VP505XVT FULL 1080p Plasma with SILICON OPTIX HQV (Hollywood Quality Video) Processing</p> <p>VIZIO jumps deeper into Full High-Definition 1080p plasma performance with a bang to capture the imagination of even the most discerning consumers with the 50" VIZIO VP505XVT. Plasma TVs are the preferred choice for superior color, higher contrast ratios, longer panel life and fast refresh rates.</p> <p>To ensure smooth, crisp, clean, and more vibrant images, VIZIO integrated the Silicon Optix’s REON HQV processing into the VP505XVT. This advanced technology brings out even the finest details with both Standard Definition (SD) and High Definition (HD) sources. Rendered colors are more natural, showing true color tones as they were intended. Moreover, Silicon Optix HQV’s advanced noise reduction removes noise and artifacts caused by signal compression from cable and satellite providers. Since the HQV’s REON chip can process two full channels of HD or SD channels, this allows users to achieve full resolution with picture-in-picture images.</p>

EXHIBIT A
Infringement Chart
U.S. Patent No. 6,239,842
Vizio Televisions or Displays with HQV, Including VP505XVT, VP504F, and VP605F

(See also, Exhibit 6).

Vizio further points out how this product is being sold through retailers such as Sears, Costco, and Sam's Club:

Available through traditional consumer electronics retailers such as Circuit City and Sears and Club retailers like Costco and Sam's Club, the new VIZIO VP505XVT will ship in July with an estimated selling price of \$1699.99.
http://www.noydcom.com/press_release/vizio/XVT/VIZIO_XVT_PR_FNL.pdf (**Exhibit 2**)

Hollywood Quality Video (HQV) advertises on their website this model makes use of such technology. From HQV's website's products page assessed on 11-27-2011 and August 2, 2012 at <http://www.hqv.com/index.cfm?page=products.displays> (**Exhibit 3**)

Vizio



The Vizio VP505XVT products feature the finest technology available today. Including HQV® Hollywood Quality Video™ processing working with full high definition 1080p resolution, these plasma displays offer great visual experience in high-definition flat panel technology. Whether it's High Definition, Standard Definition, or EDTV, the signals are reproduced with amazing results.

[VP505XTV 50" Plasma TV](#)

HQV is a technology suite that performs many video error correction and video enhancement processes, including a pixel-based motion adaptive de-interlacing process. This process is shown on HQV's website's de-interlacing technology page accessed on 1-20-2011 and August 2, 2012 at <http://www.hqv.com/index.cfm?page=tech.de-interlacing> (**Exhibit 4**):

EXHIBIT B
Infringement Chart
U.S. Patent No. 7,271,840
Vizio Televisions or Displays with Faroudja DCDi, Including P50HDTV10A, VM60P, GV46L0, RP56, L13 and JV50P

Vizio (or its customers or retailers) have infringed claims 56, 57, 58, 59, and 62 of U.S. Patent No. 7,721,840 (“the ‘840 patent”) within the meaning of 35 U.S.C. 271(a) by making, using, selling, offering for sale, or importing into the United States televisions or displays incorporating Faroudja DCDi technology, including at least Vizio’s P50HDTV10A, VM60P, GV46L0, RP56, L13 and JV50P. (See Exhibits 14, 17, 18, 19, 20, 21, 23.) As described, Vizio also induces and contributes to infringement within the meaning of 35 U.S.C. 271(b) and 35 U.S.C. 271(c). See manuals for Vizio TVs, e.g. P50HDTV10A user manual (**Exhibit 14**). This chart is meant to be exemplary of infringement by any Vizio television or display incorporating Faroudja DCDi technology. As discovery has just begun, Oplus reserves the right to add additional claims and/or products.

Claim	Vizio Televisions or Displays with Faroudja DCDi, Including P50HDTV10A, VM60P, GV46L0, RP56, L13 and JV50P
<p>Claim 56</p> <p>56. A method determining entropy of a pixel of a real time streaming digital video image signal,</p>	

EXHIBIT B
Infringement Chart
U.S. Patent No. 7,271,840
Vizio Televisions or Displays with Faroudja DCDi, Including P50HDTV10A, VM60P, GV46L0, RP56, L13 and JV50P

	<p>Here is Vizios newest plasma.....i mean surround sound.....i guess both 😊 http://www.vizio.com/products/detail.aspx?pid=32 Introducing VIZIO's newest All-In-One home theater solution, the VIZIO JV50P "Jive" Plasma HDTV.</p> <p>VIZIO's JV50P "Jive" sets a new benchmark for home entertainment, being the first TV manufacturer in the industry to offer a 50" High-Definition Plasma TV coupled with a true Dolby Digital 5.1 surround-sound system. The new JV50P "Jive" offers true digital High Definition TV performance with integrated digital TV tuner, support for 1080i resolution, amazing 15,000:1 contrast ratio and an optical audio input to allow your new VIZIO "Jive" to be your all-in-one home theater solution.</p> <p>DCDi by Faroudja Low Angle De-interlacing Processing for superior video quality.</p> <p>VIZIO Universal Backlit and ergonomic Remote Control and TV</p> <p>With" Wireless Speakers" option enabled, wireless transmission takes place at 5.8GHz</p> <p>Exhibit 21</p> <p>The Faroudja/Genesis processing chips included in these Vizio televisions use (for instance) Genesis' Faroudja DCDi technology which performs a method determining entropy of a pixel of a real time streaming digital video image signal. This is an aspect of a motion adaptive noise reduction process.</p> <p>For example, from a data sheet accessed on 1-19-2011 at http://www.datasheetarchive.com/FLJ2300-datasheet.html (Exhibit 22):</p>
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EXHIBIT B
Infringement Chart
U.S. Patent No. 7,271,840
Vizio Televisions or Displays with Faroudja DCDi, Including P50HDTV10A, VM60P, GV46L0, RP56, L13 and JV50P

	<p style="text-align: center;">Motion adaptive noise reduction</p> <p>Noise on an image is typically eliminated or reduced by filtering. Filtering can be done spatially, (2-D), or temporally, (3-D). Spatial filtering results in a soft image with loss of detail. Temporal filtering does not create loss of detail, but if done incorrectly, does result in smearing or ghosting of moving objects in the image. ST uses Motion Adaptive processing to reduce noise without introducing smearing.</p>
<p>Claim 57</p> <p>57. The method of claim 56, whereby in step (a) the streaming digital video image input signal is received following subjecting the streaming digital video image input signal to a pull down mode conversion method selected from the group consisting of a 3:2 pull down mode conversion method, a 2:2 pull down mode conversion method, and a scan rate conversion, other than the 3:2 pull down mode conversion and the 2:2 pull down mode conversion, from a non-interlaced film format or a progressive video format to an interlaced video format.</p>	<p>The processing chips included in these Vizio televisions use (for instance) Genesis' Faroudja DCDi technology's Format Converter IC operates with 3:2 and 2:2 pulldown.</p> <p>For example, from a data sheet accessed on 1-19-2011 at http://www.datasheetarchive.com/FLI2300-datasheet.html (Exhibit 22):</p> <p>The FLI2300 Digital Video Format Converter produces the highest quality upconverted video output from a variety of interlaced video inputs including 525i/50 (NTSC), 625i/50 (PAL or SECAM), 480p/60, 720p/60, 1080i/60 (ATSC) and RGB graphics up to SXGA, with a maximum pixel rate of 75 MHz. It uses patented and patent pending motion-adaptive deinterlacing that selects the optimal filtering on a per-pixel basis to produce maximum resolution without introducing motion artifacts. This includes film mode for proper handling of 3:2 and 2:2 pulldown as well as bad edit detection and correction, technologies invented by Faroudja Laboratories. Prior to deinterlacing, the built-in motion-adaptive noise-reducer can be used to improve the signal-to-noise ratio, resulting in further improved deinterlacing. Another proprietary feature is Directional Correlational Deinterlacing (DCDi™). This technology identifies edges at any angle in moving images and interpolates along the edge to produce smooth, natural images without the staircasing or jaggies produced by other deinterlacing technologies. The</p>
<p>Claim 58</p> <p>58. The method of claim 56, whereby step (b) further comprises:</p>	<p>The Vizio TVs utilize NTSC video signals.</p>

EXHIBIT C
Infringement Chart
U.S. Patent No. 6,239,842
Vizio Televisions or Displays with MediaTek MDDi Motion Adaptive Deinterlacing technology

Vizio (or its customers or retailers) have infringed claims 7, 8, 9, 14, and 15 of U.S. Patent No. 6,239,842 (“the ‘842 patent”) within the meaning of 35 U.S.C. 271(a) by making, using, selling, offering for sale, or importing in to the United States televisions or displays incorporating MediaTek MDDi Motion Adaptive Deinterlacing technology, including at least Vizio’s L42HDTV10A, GV42L, VW46L FHDTV10A, L37HDTV, and P42HDTV10A (e.g. MediaTek MT535X, MT538X and MT820X video signal processing chips with MDDi). As described, Vizio also induces and contributes to infringement within the meaning of 35 U.S.C. 271(b) and 35 U.S.C. 271(c). On information and belief, many more Vizio televisions incorporate MediaTek MDDi Motion Adaptive Deinterlacing technology. This claim chart is meant to be exemplary of infringement by any Vizio television incorporating MDDi Motion Adaptive Deinterlacing technology. As discovery has just begun, Oplus reserves the right to add additional claims and/or products.

Refer to service manuals for the representative Vizio TVs, e.g. VW46L FHDTV10A service manual PDF pages 25-29, (**Exhibit 9**); L42HDTV10A/GV42L service manual PDF pages 20-26, 50, (**Exhibit 8**); L37HDTV service manual PDF pages 30-32, 37-43 (**Exhibit 10**), P42HDTV10A service manual PDF pages 25-28, 33-34, (**Exhibit 11**).

Claim	Infringement by Vizio Televisions or Displays Incorporating MDDi Motion Adaptive Deinterlacing technology
Claim 7	
A method for de-interlacing an interlaced video format, the method comprising the steps of:	<p>All Vizio flat panel (e.g. HDTV) televisions must deinterlace received interlaced video signal (e.g. NTSC, 1080i HDTV) in order to display those signals in progressive form on the flat panel.</p> <p>See Exhibit 8, p. 26:</p>

EXHIBIT D
Infringement Chart
U.S. Patent No. 7,271,840
Vizio Televisions or Displays with MediaTek MDDi Motion Adaptive Deinterlacing Technology

Vizio (or its customers or retailers) have infringed claims 56, 57, 58, 59, and 62 of U.S. Patent No. 7,271,840 (“the ‘840 patent”) within the meaning of 35 U.S.C. 271(a) by making, using, selling, offering for sale, or importing in to the United States televisions incorporating MediaTek MDDi Motion Adaptive Deinterlacing with 3:2 Pulldown Detection, including at least Vizio’s L42HDTV10A, GV42L, VW46L, FHD TV10A, L37HDTV, and P42HDTV10A (e.g. MediaTek MT535X, MT538X and MT820X video signal processing chips with MDDi). As described, Vizio also induces and contributes to infringement within the meaning of 35 U.S.C. 271(b) and 35 U.S.C. 271(c). On information and belief, many more Vizio televisions incorporate MediaTek MDDi Motion Adaptive Deinterlacing technology. This claim chart is meant to be exemplary of infringement by any Vizio television incorporating MDDi Motion Adaptive Deinterlacing with 3:2 Pulldown Detection. As discovery has just begun, Oplus reserves the right to add additional claims and/or products.

Refer to service manuals for the representative Vizio TVs, e.g. VW46L FDDTV10A service manual PDF pages 25-29, (**Exhibit 9**); L42HDTV10A/GV42L service manual PDF pages 20-26, 50, (**Exhibit 8**); L37HDTV service manual PDF pages 30-32, 37-43, (**Exhibit 10**); P42HDTV10A service manual PDF pages 25-28, 33-34, (**Exhibit 11**).

Claim	Infringement by Vizio Televisions or Displays Incorporating MDDi Motion Adaptive Deinterlacing Technology
Claim 56	Vizio TVs which utilize MediaTek MDDi Motion Adaptive Deinterlacing with 3:2 Pulldown Detection (hereinafter “MDDi”) operate so as to determine the entropy of a pixel of a real time streaming digital video image signal (e.g. a recorded or broadcast digital television signal). Specifically, MDDi utilizes 3:2 deinterlacing. In 3:2 deinterlacing, in order to determine if a given pixel belongs to one field or another, i.e. to determine which field or frame it is related to, it is necessary to determine its entropy. This must be done in real time in order for the Vizio TV to display real time video programs.
for automatically correcting an error produced during real time editing of the real time streaming digital video	See Exhibit 8 , pp. 21, 26, 50, 52; Exhibit 9 , pp. 26, 29, Exhibit 10 , pp. 38, 43, 59, 61; Exhibit 11 , pp. 34, 39, 55, 57
	Vizio TVs which utilize MDDi perform deinterlacing to covert interlaced video into progressive video. Interlaced video signals are subject to errors caused by real time editing of the video signal. The 3:2 deinterlacing performed by MDDi detect and correct such errors.

MHN

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION

IP INNOVATION LLC, and TECHNOLOGY
LICENSING CORPORATION,

Plaintiffs,

vs.

VIZIO, INC. (f/k/a V, Inc.) and MICROSOFT
CORPORATION,

Defendants.

No. 08 C 393

Judge St. Eve

Magistrate Judge Cox

JURY TRIAL DEMANDED

STIPULATED PROTECTIVE ORDER

The discovery procedures in this case may require disclosure of information, either documentary or testimonial or both, regarded by the producing party or non-party as confidential information incorporating proprietary data, know-how, trade secrets, or other valuable commercial information. Accordingly, the parties, by and through their respective attorneys, stipulate and agree to the following terms and conditions, which shall apply to this civil action:

1. Any document, tangible item, or testimonial information (including any document or tangible thing as defined in Rule 34(a) of the Federal Rules of Civil Procedure or any applicable local rule) that is provided, produced, disclosed, or filed in the above-captioned *IP Innovation LLC & Technology Licensing Corporation v. VIZIO, Inc. and Microsoft Corporation*, 08-C-393 (N.D. Ill.), by or on behalf of any party or non-party, voluntarily or involuntarily, whether pursuant to formal or informal discovery requests, subpoena, deposition notice, or motion practice, and whether revealed in a document, deposition, a response to any type of written discovery, a submission to the Court, or otherwise ("Litigation Material"), which that

replacement pages bearing the appropriate confidentiality legend. In the event of any unintentional or inadvertent disclosure of CONFIDENTIAL, ATTORNEYS' EYES ONLY, or CONFIDENTIAL SOURCE CODE – ATTORNEYS' EYES ONLY information other than in a manner authorized by this Protective Order, counsel for the party responsible for the disclosure shall immediately notify opposing counsel of all of the pertinent facts, and make every effort to further prevent unauthorized disclosure including, retrieving all copies of the CONFIDENTIAL, ATTORNEYS' EYES ONLY, or CONFIDENTIAL SOURCE CODE – ATTORNEYS' EYES ONLY information from the recipient(s) thereof, and securing the agreement of the recipients not to further disseminate the CONFIDENTIAL, ATTORNEYS' EYES ONLY, or CONFIDENTIAL SOURCE CODE – ATTORNEYS' EYES ONLY information in any form. Compliance with the foregoing shall not prevent the producing party or non-party from seeking further relief from the Court.

23. The restrictions set forth in this Order will not apply to information which is known to the receiving party or the public before the date of its transmission to the receiving party, or which becomes known to the public after the date of its transmission to the receiving party, provided that such information does not become publicly known by any act or omission of the receiving party, its employees, or agents which would be in violation of this order. If such public information is designated as CONFIDENTIAL, ATTORNEYS' EYES ONLY, or CONFIDENTIAL SOURCE CODE – ATTORNEYS' EYES ONLY, the receiving party must inform the producing party or non-party of the pertinent circumstances before the restrictions of this order will be inapplicable.

24. No person or party shall directly or indirectly utilize or disclose any CONFIDENTIAL, ATTORNEYS' EYES ONLY, or CONFIDENTIAL SOURCE CODE –

ATTORNEYS' EYES ONLY information obtained pursuant to pretrial discovery in this action, except for the purposes of preparation, trial, and appeal of this action only and in accordance with any further order issued by the Court. Nothing herein shall prevent or in any way limit disclosure, use, or dissemination of any documents, things, or information that are in the public domain.

25. This Protective Order shall be without prejudice to the right of any party or non-party to oppose production of any information on grounds other than confidentiality.

26. This Protective Order shall not prevent any party or non-party from applying to the Court for relief therefrom, or from applying to the Court for further or additional protective orders, or from agreeing among themselves to modify or vacate this Protective Order, subject to the approval of the Court.

27. (a) At the conclusion of this action, including any appeals, all CONFIDENTIAL, ATTORNEYS' EYES ONLY, and CONFIDENTIAL SOURCE CODE – ATTORNEYS' EYES ONLY information furnished pursuant to this Protective Order, and all copies and summaries thereof and notes made therefrom, shall be returned to the producing attorneys of record, or, at the producing party's or non-party's option, destroyed by counsel for the receiving party, within sixty (60) days of the conclusion of this action. If the receiving party destroys CONFIDENTIAL, ATTORNEYS' EYES ONLY, and CONFIDENTIAL SOURCE CODE – ATTORNEYS' EYES ONLY information as provided in this paragraph, such party must certify to the producing party or non-party in writing that it has made a reasonable and good faith effort to destroy such CONFIDENTIAL, ATTORNEYS' EYES ONLY, and CONFIDENTIAL SOURCE CODE – ATTORNEYS' EYES ONLY information, and that all such material has been destroyed to the best of its knowledge. The provisions of this Protective

CONFIDENTIAL SOURCE CODE – ATTORNEYS' EYES ONLY information shall be disclosed to the inventor unless the thirty- (30) day period expires without the producing party or non-party having filed a motion or without a Court Order authorizing such disclosure if the producing party or non-party has filed a motion for protection to prevent the disclosure of certain (or any) ATTORNEYS' EYES ONLY or CONFIDENTIAL SOURCE CODE – ATTORNEYS' EYES ONLY information to the inventor.

(c) In the event an inventor of any patent-in-suit is permitted access to any ATTORNEYS' EYES ONLY or CONFIDENTIAL SOURCE CODE – ATTORNEYS' EYES ONLY information pursuant to the procedures set forth in paragraph 36, such inventor must sign the form attached hereto as Appendix A.

(d) The parties' agreement to the process set forth in paragraph 36 will not be held against any party or non-party should a motion be filed pursuant to this paragraph given that the parties agreed to the process set forth herein to avoid involving the Court in the issue of inventor access to ATTORNEYS' EYES ONLY or CONFIDENTIAL SOURCE CODE – ATTORNEYS' EYES ONLY information until such time as there is an actual dispute on this issue.

The foregoing is hereby stipulated by and between counsel.

DATED this 12th day of December, 2008.

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(with permission)

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Jesse Rice

UNITED STATES DISTRICT COURT
CENTRAL DISTRICT OF CALIFORNIA

WESTERN DIVISION

OPLUS TECHNOLOGIES, LTD.,)	
)	
Plaintiff,)	
)	
vs.	)	No. CV12-5707 MRP(E)
)	
SEARS HOLDINGS CORPORATION, VIZIO,)	
INC.,)	
)	
Defendants.)	
)	

VIDEOTAPED DEPOSITION OF JESSE L. RICE

May 15, 2013

Seattle, Washington

Jesse Rice

Page 2

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IN THE UNITED STATES DISTRICT COURT
FOR THE CENTRAL DISTRICT OF CALIFORNIA
WESTERN DIVISION

OPLUS TECHNOLOGIES, LTD.,

Plaintiff,

v.

SEARS HOLDINGS CORPORATION
and VIZIO, INC.,

Defendants.

Case No. CV12-5707 MRP (E)

*Assigned to the Honorable Mariana R.
Pfaelzer*

**PLAINTIFF'S OPPOSITION TO
VIZIO'S MOTION FOR
ATTORNEYS' FEES AND
EXPERT WITNESS FEES
PURSUANT TO 35 U.S.C. § 285, 28
U.S.C. § 1927, AND THE COURT'S
INHERENT POWER**

[CONFIDENTIAL VERSION]

Date: December 9, 2013

Time: 11:00 AM

Courtroom: 12

1 a. **Oplus did not take contradictory positions regarding**
2 the “absolute value of the difference between two
3 spatial pixel values”

4 VIZIO mischaracterizes Oplus’ infringement contentions. VIZIO asserts that
5 Oplus relied on Col. 5:46-49 from the ‘186 Patent in support of its claim that
6 VIZIO televisions with the accused MediaTek chips satisfied the “evaluating
7 logical operations of linear combinations of values” limitation in the ‘842 Patent,
8 and then Oplus’ expert later said that this disclosure did not satisfy that limitation.
9 (Dkt. No. 195, pp. 17-18). However, Oplus *did not rely* on that excerpt from the
10 ‘186 Patent to support its evidence of infringement.

11 As evidence that VIZIO televisions with MDDi satisfied the “evaluating
12 logical operations” step of the ‘842 Patent, Oplus pointed to excerpts from two
13 MediaTek patents: the ‘186 Patent and U.S. Patent No. 6,456,329 (“the ‘329
14 Patent”), as well as VIZIO service manuals. (Dec. ¶ 3, Ex. C, Exhibit C, pp. 8-9;
15 Dkt. No. 139-4, pp. 9-10). VIZIO’s brief completely ignores the ‘329 Patent and
16 service manuals and instead suggests that Oplus relied solely on the ‘186 Patent.

17 Oplus cited to Col. 1:48-56 of the ‘186 Patent as evidence that the MediaTek
18 chips utilized by VIZIO performed motion adaptive de-interlacing, and that motion
19 adaptive de-interlacing involved an “interpolation algorithm.” (Id.; Dec. ¶ 30; Ex.
20 AD). Oplus *never* cited to Col. 5:46-49 of the ‘186 Patent. In fact, on May 15,
21 2013, Oplus told VIZIO “With respect to the ‘186 Patent at Col. 5:30- to Col. 6:35
22 ... Oplus does not believe that such a feature is required by the claims and thus
23 does not rely upon that passage.” (Dec. ¶ 24, Ex. X, p. 4). This portion of the ‘186
24 Patent has nothing to do with interpolation or assigning a value to a missing pixel.

1 Thus, Oplus did not state that this passage described the relevant MediaTek
2 “interpolation algorithm.” In fact, VIZIO’s own expert agreed that the ‘186 Patent
3 does not discuss the MediaTek interpolation algorithm. (Dec. ¶ 31, Ex. AE, ¶ 85
4 (“The ‘186 Patent ... contemplates that the motion determination will ultimately be
5 used to select an interpolation algorithm, but no such algorithm is described.”)).
6 Oplus cited Col. 4:45-64 of the ‘329 Patent as evidence detailing interpolation
7 performed within the MediaTek chips. (Dec. ¶ 3, Ex. C at Exhibit C to
8 Infringement Contentions, pp. 9, 19-20; Dec. ¶ 32, Ex. AF). VIZIO’s motion
9 neither mentions this evidence nor disputes the reasonableness of Oplus’ reliance
10 upon such evidence.

11 VIZIO’s characterization of the disputed disclosure of the ‘186 Patent is not
12 even correct. VIZIO states that it discloses the use of the “absolute values of spatial
13 pixel differences.” (Dkt. No. 195, p. 18). Yet VIZIO’s own expert recognized that
14 it actually “discloses a circuit that is capable of looking at *different temporal pixel*
15 *differences* between adjacent temporal fields to determine which algorithm to
16 deinterlace with.” (Dec. ¶ 31, Ex. AE, ¶ 85; emphasis in original). VIZIO’s error is
17 not surprising – the disclosure was never of any importance in this litigation.
18 VIZIO did not rely on this disclosure in its invalidity contentions or its opening
19 briefs in support of invalidity. VIZIO has not even attempted to explain how the
20 supposed contradiction had any impact on this litigation. VIZIO’s argument that
21 there was a conflict between Oplus’ infringement contentions and its validity
22 position is not just false, it is an after-the-fact construct which had no significance
23 in this litigation.

b. **Oplus did not take conflicting positions
“regarding the disclosure of the absolute value
operator”**

VIZIO contends that Oplus’ experts took contradictory positions regarding the disclosure of the “absolute value operator.” More specifically, VIZIO contends that a statement by Oplus’ expert, Dr. Ferraro, that “an absolute value of a linear combination is a linear combination” was later contradicted by the opinion of Oplus’ expert, Carl Cooper, that “the absolute value of the difference between spatial pixels” was not a member of the Markush group. There is no contradiction. Mr. Cooper was wholly unconcerned with whether “an absolute value of a linear combination is a linear combination.” Rather, he was pointing out the indisputable fact “the absolute value of the difference between spatial pixels” is not a member of the Markush groups of claims 7 and 14 of the ‘842 Patent. Mr. Cooper also explained repeatedly during his deposition why there was no conflict between Dr. Ferraro’s and his own position, and that VIZIO was misconstruing, misreading, and ignoring the heading F that preceded Dr. Ferraro’s paragraph 31. (Dec. ¶ 33, Ex. AG, Cooper Dep., pp. 58:25-65:25). As Mr. Cooper explained, you have to read the heading in context with paragraph 31. (Dec. ¶ 33, Ex. AG, Cooper Dep., p. 60).

Dr. Ferraro’s statement in paragraph 31 was made during VIZIO’s initial, unsuccessful, motion for summary judgment of invalidity, which Oplus will not rehash here. (Dkt. Nos. 101, 108, 111). In denying VIZIO’s motion, the Court rejected VIZIO’s contention that the specification discloses logical operations performed on a Markush group member, “such as ‘ $\text{abs}(m_T - x_1)$ ’ *‘without first*

1 *forming a linear combination.*” (Dkt. No. 113, p. 11). Agreeing with Mr. Ferraro,
 2 the Court explained that the specifications disclosure of “ $\text{abs}(m_T - X_1) < A1$ ” is a
 3 linear combination.” (Id., p. 12). The Court found it irrelevant whether “ $\text{abs}(m_T -$
 4 $X_1)$,” by itself, was a linear combination. (Id., pp. 11-12). The Court explained that
 5 the “evaluating logical operations” step is “agnostic to whether the terms being
 6 combined are themselves linear combinations or not.” (Id., pp. 9-10).

7 Later, in the context of VIZIO’s second motion for summary judgment of
 8 invalidity, Mr. Cooper evaluated whether the Simonetti reference’s disclosure
 9 satisfied the “evaluating logical operations of linear combinations of values
 10 selected from the [Markush] group” step. Mr. Cooper opined that it did not satisfy
 11 the relevant limitation because the terms “ $|B-E|$ ” or “ $|A-D|$ ” were not values
 12 within the Markush group. (Dec. ¶ 34, Ex. AH, ¶ 52). Put another way, the
 13 “absolute value of the difference between spatial pixels,” is not a member of the
 14 Markush group. Cooper had no reason to be concerned with whether “ $|B-E|$ ” and
 15 “ $|A-D|$ ” were, themselves, linear combinations. For, as the Court had already
 16 decided, this question was irrelevant. The relevant linear combinations, in which
 17 there were “logical operations,” were “ $|B-E| < h2$ ” and “ $|A-D| < h2$ ” and each of
 18 these contained a value, “ $|B-E|$ ” and “ $|A-D|$,” that was not a member of the
 19 Markush group. Thus, Mr. Cooper’s point was not that “ $|B-E|$ ” and “ $|A-D|$ ”
 20 were not linear combinations, but rather that, regardless of whether they were
 21 linear combinations, they were not values within the Markush group. Therefore,
 22 there was no inconsistency with Mr. Ferraro’s statement that “the absolute value of
 23 a linear combination is a linear combination.”

VIZIO's suggestion that Oplus acted improperly in relying on different experts to address VIZIO's separate motions for summary judgment of invalidity is unfounded. Oplus did not need to switch experts so that a contradictory position could be advanced, because Oplus never advanced a contradictory position.

c. Oplus did not submit inconsistent infringement and validity positions

VIZIO makes the broad claim that all of Oplus' infringement contentions were inconsistent based upon two statements made by Oplus' invalidity expert, Mr. Cooper. (Dkt. No. 195, pp. 21-22). VIZIO contends that these two statements somehow show that Oplus had no basis to accuse VIZIO products of infringement. (Id., p. 22). As has already been described at length above in Section III.A, this statement is unfounded. VIZIO grossly oversimplifies Oplus' infringement contentions. VIZIO claim that Oplus' contentions point to nothing more than the use of "motion adaptive de-interlacing" and "3:2 pull-down" is false; and it is noteworthy that VIZIO only attached brief excerpts from Oplus' infringement contentions. In fact, Oplus' infringement contentions included 26 Exhibits and did far more than cite generically to "motion adaptive de-interlacing" or "3:2 pull-down." (Dec. ¶ 3, Ex. C). None of Oplus' infringement contentions were affected by Mr. Cooper's statements regarding the bare use of "motion adaptive de-interlacing" or "3:2 pull-down," and VIZIO has not attempted to show otherwise.

2. Oplus Did Not Engage In Impermissible Forum Shopping

Oplus reasonably and properly included both VIZIO and Sears in a complaint filed in Chicago. Sears is based in a suburb of Chicago and within the

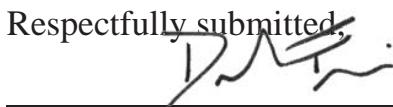
1 sanctioning authority.” *In re Yagman*, 796 F.2d 1165, 1184 (9th Cir. 1986),
 2 amended, 803 F.2d 1085 (9th Cir. 1986). “When the sanctions award is based upon
 3 attorney’s fees and related expenses, an essential part of determining the
 4 reasonableness of the award is inquiring into the reasonableness of the claimed
 5 fees.... The court must make some evaluation of the fee breakdown submitted by
 6 counsel.” *Id.* at 1184-1185.

7 “[T]he amount of the attorney fees depends on the extent to which the case
 8 is exceptional. In other words, the exceptionality determination highly influences
 9 the award setting.” *Special Devices, Inc. v. OEA, Inc.*, 269 F.3d 1340, 1344 (Fed.
 10 Cir. 2001). Awards of “all fees and costs” are improper. *See Beckman Instruments,*
 11 *Inc.* 892 F.2d at 1553. VIZIO improperly provides no analysis or break-down of its
 12 fees or how they are related to any alleged litigation misconduct, much less any
 13 explanation for its demand for expert fees. Worse, a number of the invoices
 14 submitted by VIZIO are extensively redacted, yet VIZIO still seeks the full fee for
 15 those time entries. (See, e.g., Dkt. No. 196, VIZIO Exs. A-C, E-I, K, M-Q, S).
 16 Moreover, Dr. Hemami’s invoices merely state “Time spent” with no indication of
 17 what she was doing. (See, e.g. Dkt. No. 196, VIZIO Exs. I, J, K, O, P, R).

18 **IV. CONCLUSION**

19 For the reasons set forth, VIZIO’s motion should be denied in its entirety.

20 Respectfully submitted,

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IN THE UNITED STATES DISTRICT COURT
FOR THE CENTRAL DISTRICT OF CALIFORNIA
WESTERN DIVISION

OPLUS TECHNOLOGIES, LTD.,

Plaintiff,

v.

SEARS HOLDINGS CORPORATION
and VIZIO, INC.,

Defendants.

Case No. CV12-5707 MRP (E)

*Assigned to the Honorable Mariana R.
Pfaelzer*

**DECLARATION OF DANIEL R.
FERRI IN SUPPORT OF
PLAINTIFF'S OPPOSITION TO
VIZIO'S MOTION FOR
ATTORNEYS' FEES AND
EXPERT WITNESS FEES
PURSUANT TO 35 U.S.C. § 285, 28
U.S.C. § 1927, AND THE COURT'S
INHERENT POWER**

5 44. Exhibit AR is a true and accurate copy of *The Evolving IP*
6 *Marketplace*, Federal Trade Commission Hearing Transcript for December 5,
7 2008.

45. Oplus' counsel never reviewed the information from the *IP Innovation LLC et al. v. VIZIO, Inc., Case No. 1:08-cv-00393* case in violation of any protective order.

1
2 I declare under penalty of perjury under the laws of the United States that
3 the foregoing is true and correct to the best of my knowledge and belief.

4 Executed this 18th day of November 2013 in Chicago, Illinois.

5 _____ Daniel R. Ferri

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SEARS HOLDINGS CORPORATION
and VIZIO, INC.,

Defendants.

Case No. CV12-5707 MRP (Ex)

*Assigned to the Honorable Mariana R.
Pfaelzer*

**PLAINTIFF'S INITIAL
INFRINGEMENT CONTENTIONS**

JURY TRIAL DEMANDED

EXHIBIT C**Infringement Chart****U.S. Patent No. 6,239,842****Vizio Televisions or Displays with MediaTek MDDi Motion Adaptive Deinterlacing technology**

Vizio (or its customers or retailers) have infringed claims 7, 8, 9, 14, and 15 of U.S. Patent No. 6,239,842 (“the ‘842 patent”) within the meaning of 35 U.S.C. 271(a) by making, using, selling, offering for sale, or importing in to the United States televisions or displays incorporating MediaTek MDDi Motion Adaptive Deinterlacing technology, including at least Vizio’s L42HDTV10A, GV42L, VW46L FHDTV10A, L37HDTV, and P42HDTV10A (e.g. MediaTek MT535X, MT538X and MT820X video signal processing chips with MDDi). As described, Vizio also induces and contributes to infringement within the meaning of 35 U.S.C. 271(b) and 35 U.S.C. 271(c). On information and belief, many more Vizio televisions incorporate MediaTek MDDi Motion Adaptive Deinterlacing technology. This claim chart is meant to be exemplary of infringement by any Vizio television incorporating MDDi Motion Adaptive Deinterlacing technology. As discovery has just begun, Oplus reserves the right to add additional claims and/or products.

Refer to service manuals for the representative Vizio TVs, e.g. VW46L FHDTV10A service manual PDF pages 25-29, (**Exhibit 9**); L42HDTV10A/GV42L service manual PDF pages 20-26, 50, (**Exhibit 8**); L37HDTV service manual PDF pages 30-32, 37-43 (**Exhibit 10**), P42HDTV10A service manual PDF pages 25-28, 33-34, (**Exhibit 11**).

Claim	Infringement by Vizio Televisions or Displays Incorporating MDDi Motion Adaptive Deinterlacing technology
Claim 7	
A method for de-interlacing an interlaced video format, the method comprising the steps of:	All Vizio flat panel (e.g. HDTV) televisions must deinterlace received interlaced video signal (e.g. NTSC, 1080i HDTV) in order to display those signals in progressive form on the flat panel. See Exhibit 8 , p. 26:

EXHIBIT C

Infringement Chart

U.S. Patent No. 6,239,842

Vizio Televisions or Displays with MediaTek MDDi Motion Adaptive Deinterlacing technology

3.De-interlacing

2nd generation advanced Motion adaptive de-interlacing

Automatic detect film or video source

3:2/2:2 pull down source detection

Main/PIP 2 independent de-interlacing processor

See **Exhibit 8**, p. 50:

whole new viewing experience.Credible Audio/Video Quality : The MT5351 use advanced motion-adaptive de-interlace algorithm to achieve the best movie/video playback , The embedded

See **Exhibit 9**, p. 26:

World-Leading Audio/Video Technology: The MT538x family has built-in high resolution and high-quality audio codec. It includes MediaTek MDDi™ de-interlace solution to generate very smooth picture quality for motions. A 3D comb filter added to the TV decoder recovers great detail for still pictures. The special color processing technology provides natural, deep colors and true studio quality graphics.

See **Exhibit 9**, p. 29:

EXHIBIT C

Infringement Chart

U.S. Patent No. 6,239,842

Vizio Televisions or Displays with MediaTek MDDi Motion Adaptive Deinterlacing technology

10. Automatic detect films or video sources

11. 3:2/2:2 pull down source detection

12. The MT5380 support bob mode de-interlace.

The MT5381 support 1366 width motion-adaptive de-interlace.

The MT5382 supports maximum 1920 width motion-adaptive de-interlace. The entire MT538x family supports excellent low angle image processing.

See **Exhibit 10**, p. 38:

MT8205 Application

MT8205 is a highly integrated single chip for LCD TV supporting video input and output format up to HDTV. It includes 3D comb filter TV Decoder to retrieve the best image from popular composite signals. On-chip advanced motion adaptive de-interlacer converts accordingly the interlace video into progressive one with overlay of a 2D Graphic processor.

See **Exhibit 10**, p. 43:

b. De-interlacing

Automatic detect film or video source

3:2/2:2 pull down source detection

Advanced Motion adaptive de-interlacing

See **Exhibit 11**, p. 34:

EXHIBIT C**Infringement Chart****U.S. Patent No. 6,239,842****Vizio Televisions or Displays with MediaTek MDDi Motion Adaptive Deinterlacing technology**

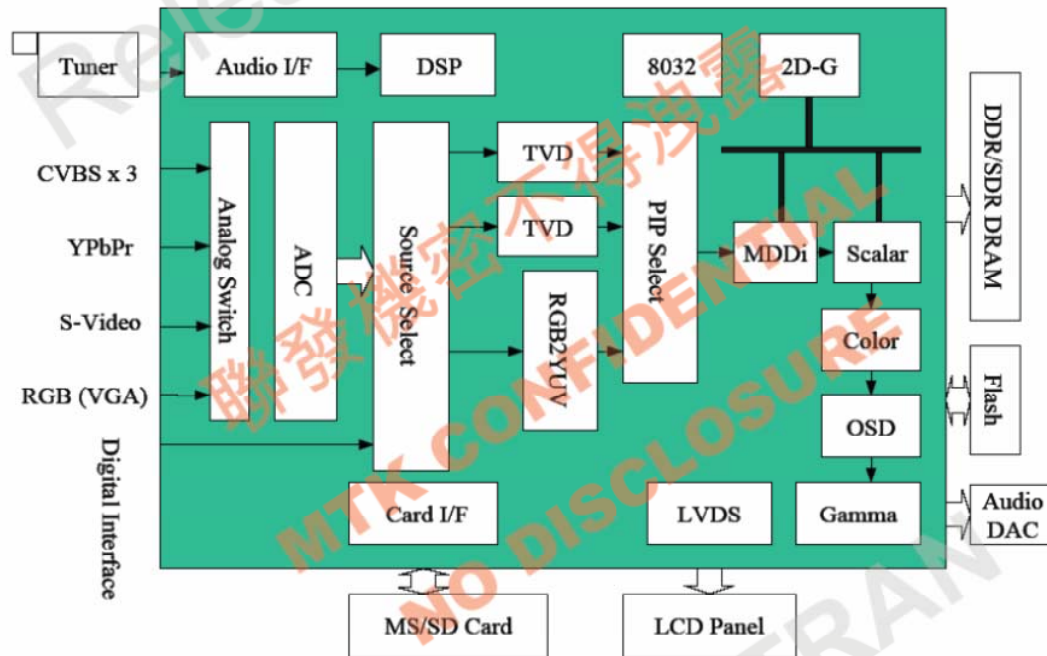
	<p>MT8205 Application</p> <p>MT8205 is a highly integrated single chip for PDP TV supporting video input and output format up to HDTV. It includes 3D comb filter TV Decoder to retrieve the best image from popular composite signals. On-chip advanced motion adaptive de-interlacer converts accordingly the interlace video into progressive one with overlay of a 2D Graphic processor. Optional 2nd HDTV or SDTV inputs allows user to see multi-programs on same screen. Flexible scalar provides wide adoption to various PDP panel for different video sources. Its on-chip audio processor decodes analog signals from Tuner with lip sync control, delivering high quality post-processed sound effect to customers. On-chip microprocessor reduces the system BOM and shortens the schedule of UI design by high level C program. MT8205 is a cost-effective and high performance HDTV-ready solution to TV manufactures.</p>
(a) receiving the interlaced video format feature a sequence of fields of pixels to be de-interlaced;	<p>The interlaced video signal is received by the TV via an antenna connector and tuner and/or video connector. Interlaced video signals by definition incorporate a sequence of fields of pixels with the commonly used interlaced video signals (e.g. NTSC, 1080i) having two fields with one field containing all of the even scan lines and the other field containing all of the odd scanning lines. The fields by definition have missing scanning lines and thus missing pixels of those scanning lines.</p> <p>See Exhibit 8, p. 21:</p>

#:8187

Infringement Chart

U.S. Patent No. 6,239,842

Vizio Televisions or Displays with MediaTek MDDi Motion Adaptive Deinterlacing technology



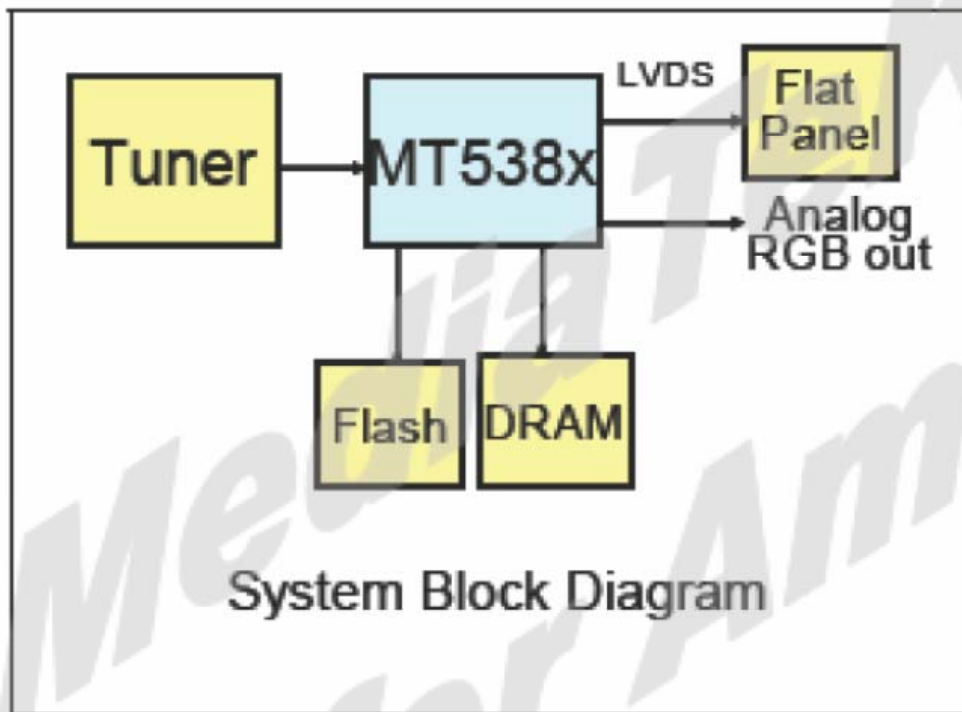
See **Exhibit 9**, p. 27:

EXHIBIT C

Infringement Chart

U.S. Patent No. 6,239,842

Vizio Televisions or Displays with MediaTek MDDi Motion Adaptive Deinterlacing technology



See **Exhibit 10**, p. 31:

EXHIBIT C

Infringement Chart

U.S. Patent No. 6,239,842

Vizio Televisions or Displays with MediaTek MDDi Motion Adaptive Deinterlacing technology

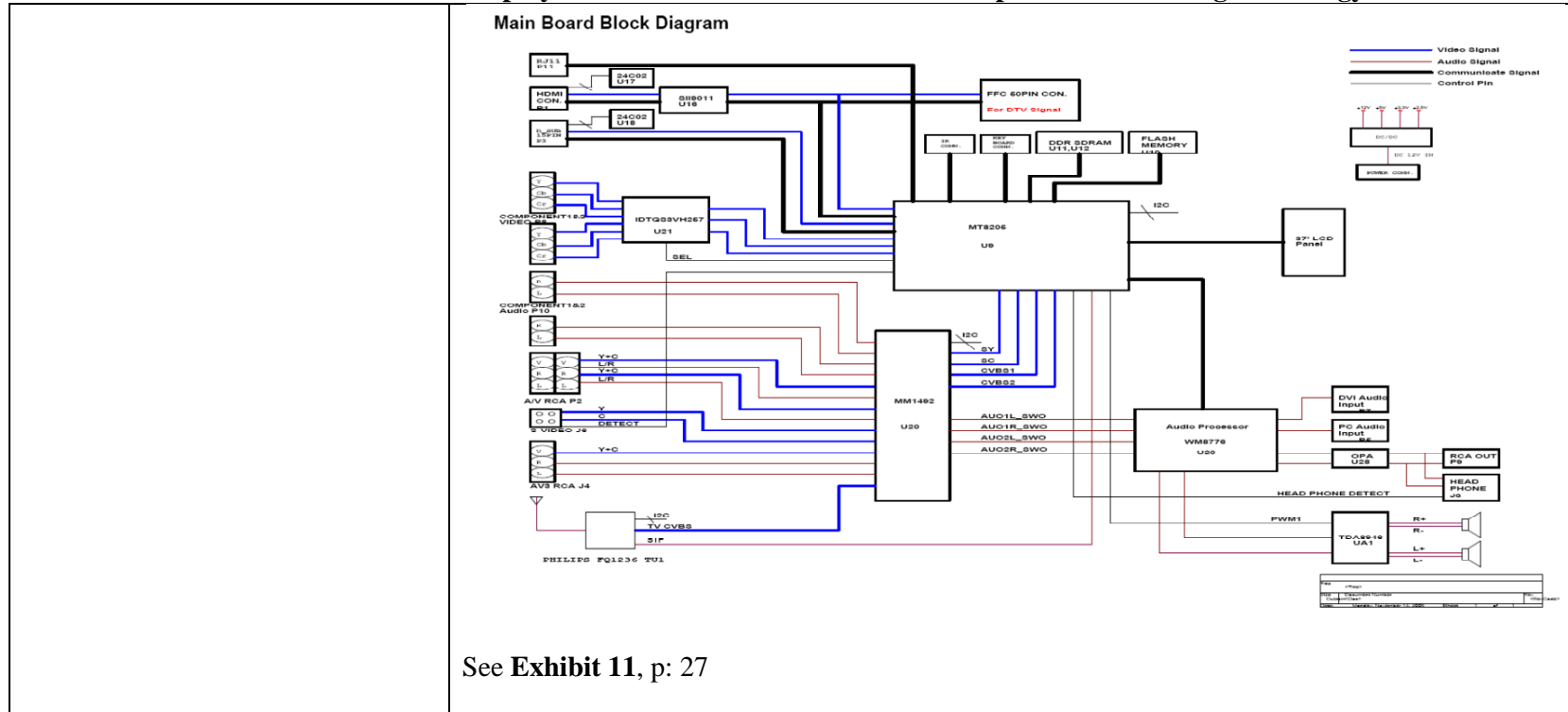


EXHIBIT C

Infringement Chart

U.S. Patent No. 6,239,842

Vizio Televisions or Displays with MediaTek MDDi Motion Adaptive Deinterlacing technology

	<p>Main Board Block Diagram</p> <p>The diagram illustrates the internal architecture of a Vizio television. It features a central processing unit (U20) connected to various input ports (HDMI, AV, VGA, etc.) and a video switch (U21). The video switch is connected to a video/audio system (PD42-LK) and a display panel. An audio switch (U22) is connected to the video switch and an audio amplifier (U23). The diagram also shows connections to a display panel and an audio amplifier (U23).</p>
<p>(b) evaluating logical operations of linear combinations of values selected from the group consisting of averages of known values of spatial pixels, averages of said known values of temporal pixels, standard deviations of said known values of said spatial pixels, standard deviations of said known values of said temporal pixels, minimums of said standard deviations of said known values of</p>	<p>The MDDi algorithm is a motion adaptive de-interlacer. (e.g. Exhibit 8, p. 26; Exhibit 9, p. 29; Exhibit 10, p. 38 and 43; Exhibit 11, p. 34). See also, e.g., MediaTek U.S. Patent No. 7,286,186 at Col. 1:48-56 (Exhibit 16):</p> <p>However, using the motion-adaptive de-interlacing method is the most efficient way to process interlaced to progressive conversion. The motion-adaptive de-interlacing method generally includes two steps. The first step involves processing motion detection, which means detecting a motion situation by checking a fix number of video fields of the interlaced video signal. Then, the second step involves selecting a proper interpolation algorithm according to the detected motion situation.</p>

EXHIBIT C**Infringement Chart****U.S. Patent No. 6,239,842****Vizio Televisions or Displays with MediaTek MDDi Motion Adaptive Deinterlacing technology**

<p>said spatial pixels, absolute values of differences between said averages of said known values of said temporal pixels and said known values of said spatial pixels, said known values of said spatial pixels, and a plurality of constants,</p>	<p>The MDDi algorithm analyzes pixels from multiple fields, comparing values of pixels at similar spatial locations but different times, and makes interpolations using averages of known values. Thus, logical operations are evaluated of linear combinations of values selected from the group consisting of averages of said known values of said spatial pixels, averages of said known values of temporal pixels, standard deviations of said known values of said spatial pixels, standard deviations of said known values of said temporal pixels, minimums of said standard deviations of said known values of said spatial pixels, absolute values of differences between said averages of said known values of said temporal pixels and said known values of said spatial pixels, said known values of said spatial pixels, and a plurality of constants.</p> <p>See, e.g., MediaTek U.S. Patent No. 6,456,329, Col. 4:45-64 (Exhibit 15):</p> <p>FIG. 4 is a diagram illustrating the relative spatial positions of a sequence of pixel-containing lines of a portion of one image field and a transformation thereof to remove the about one-half line spatial offset or misalignment that produces the aforementioned vertical jitter. A suitable transformation (or filtering) is one that interpolates, such as by simple averaging, the pixels of two adjacent lines of one of the two NTSC interlaced fields and substitutes the averaged line therefor. Where the transformation operates on the lines of field B, for example, as in FIG. 4, an interpolation by averaging is performed by adding the values of adjacent lines a and b of field B and dividing the sum by two, the result being the averaged line a' of transformed or filtered field B'. Similarly, lines b and c of field B are likewise averaged to produce the averaged line b' of transformed field B'.</p> <p>Preferably, the values of pixels at corresponding horizontal positions along each of the lines are transformed to produce a pixel value for the pixel at that particular position in the transformed line. Also preferably, the transformation</p> <p>Therefore, the best combination of these most likely correct linear combinations to be used to generate the values of the missing pixels are evaluated by logical operations.</p>
<p>said logical operations selected from the group consisting of greater</p>	<p>The logical operations are selected from the group consisting of greater than, greater than or equal to, less than, less than or equal to, 'and', 'or', and 'xor' which are all Boolean logic</p>

EXHIBIT C**Infringement Chart****U.S. Patent No. 6,239,842****Vizio Televisions or Displays with MediaTek MDDi Motion Adaptive Deinterlacing technology**

than, greater than or equal to, less than, less than or equal to, `and`, `or`, and `xor`; and	operations commonly utilized in digital logic circuitry used to implement the MDDi portion of the MediaTek circuits.
(c) deciding upon assignment of values to missing spatial pixels according to results of said logical operations.	Based on the logical operations, the MDDi circuit makes the assignment of the values to the missing spatial pixels according to the results thus completing the deinterlacing operation.
Claim 8	
The method of claim 7, wherein said sequence of fields of pixels to be de-interlaced features a current spatial field featuring missing spatial pixels and said spatial pixels with known values located in said sequence of aid fields, and at least one temporal field featuring said temporal pixels with said known values located in said sequence of said fields.	Because the interlaced video signals which the Vizio televisions with MDDi deinterlacing all meet video standards (e.g. NTSC, 1080i HDTV) the sequence of fields of pixels to be de-interlaced features a current spatial field featuring missing spatial pixels (i.e. the missing pixels of the missing scan lines of video) and spatial pixels with known values (i.e. the included pixels of the included scan lines of video which pixels have known values) and at least one temporal field (e.g. the immediately previous or immediately past field) with temporal pixels with known values (i.e. the included pixels of the included scan lines of video which pixels have known values).
Claim 9	
9. The method of claim 8, wherein said at least one temporal field featuring said temporal pixels with said known values is selected from the group consisting of immediate previous said temporal field to said current spatial field located in said sequence of said fields, and immediate next said temporal field	In order for the MDDi circuit to perform 3:2 pulldown deinterlacing it is necessary to utilize both the immediate previous and immediate next temporal field in order that the 3 field exposure of one film frame may be distinguished from 2 field and 1 field exposures thereby ensuring that at least one of the group of immediate previous and immediate next temporal field is utilized as said one temporal field.

EXHIBIT C**Infringement Chart****U.S. Patent No. 6,239,842****Vizio Televisions or Displays with MediaTek MDDi Motion Adaptive Deinterlacing technology**

to said current spatial field located in said sequence of said fields.	
Claim 14	
14. A method for de-interlacing an interlaced video format, the method comprising the steps of:	<p>All Vizio flat panel (e.g. HDTV) televisions must deinterlace received interlaced video signal (e.g. NTSC, 1080i HDTV) in order to display those signals in progressive form on the flat panel.</p> <p>See Exhibit 8, p. 26:</p> <p>3.De-interlacing</p> <p>2nd generation advanced Motion adaptive de-interlacing</p> <p>Automatic detect film or video source</p> <p>3:2/2:2 pull down source detection</p> <p>Main/PIP 2 independent de-interlacing processor</p> <p>See Exhibit 8, p. 50:</p> <p>whole new viewing experience.Credible Audio/Video Quality : The MT5351 use advanced motion-adaptive de-interlace algorithm to achieve the best movie/video playback , The embedded</p> <p>See Exhibit 9, p. 26:</p> <p>World-Leading Audio/Video Technology: The MT538x family has built-in high resolution and high-quality audio codec. It includes MediaTek MDDi™ de-interlace solution to generate very smooth picture quality for motions. A 3D comb filter added to the TV decoder recovers great detail for still pictures. The special color processing technology provides natural, deep colors and true studio quality graphics.</p>

EXHIBIT C

Infringement Chart

U.S. Patent No. 6,239,842

Vizio Televisions or Displays with MediaTek MDDi Motion Adaptive Deinterlacing technology

See **Exhibit 9**, p. 29:

10. Automatic detect films or video sources

11. 3:2/2:2 pull down source detection

12. The MT5380 support bob mode de-interlace.

The MT5381 support 1366 width motion-adaptive de-interlace.

The MT5382 supports maximum 1920 width motion-adaptive de-interlace. The entire MT538x family supports excellent low angle image processing.

See **Exhibit 10**, p. 38:

MT8205 Application

MT8205 is a highly integrated single chip for LCD TV supporting video input and output format up to HDTV. It includes 3D comb filter TV Decoder to retrieve the best image from popular composite signals. On-chip advanced motion adaptive de-interlacer converts accordingly the interlace video into progressive one with overlay of a 2D Graphic processor.

See **Exhibit 10**, p. 43:

b. De-interlacing

Automatic detect film or video source

3:2/2:2 pull down source detection

Advanced Motion adaptive de-interlacing

EXHIBIT C**Infringement Chart****U.S. Patent No. 6,239,842****Vizio Televisions or Displays with MediaTek MDDi Motion Adaptive Deinterlacing technology**

	<p>See Exhibit 11, p. 34:</p> <p>MT8205 Application</p> <p>MT8205 is a highly integrated single chip for PDP TV supporting video input and output format up to HDTV. It includes 3D comb filter TV Decoder to retrieve the best image from popular composite signals. On-chip advanced motion adaptive de-interlacer converts accordingly the interlace video into progressive one with overlay of a 2D Graphic processor. Optional 2nd HDTV or SDTV inputs allows user to see multi-programs on same screen. Flexible scalar provides wide adoption to various PDP panel for different video sources. Its on-chip audio processor decodes analog signals from Tuner with lip sync control, delivering high quality post-processed sound effect to customers. On-chip microprocessor reduces the system BOM and shortens the schedule of UI design by high level C program. MT8205 is a cost-effective and high performance HDTV-ready solution to TV manufactures.</p>
receiving the interlaced video format featuring a sequence of fields of pixels to be de-interlaced;	<p>The interlaced video signal is received by the TV via an antenna connector and tuner and/or video connector. Interlaced video signals by definition incorporate a sequence of fields of pixels with the commonly used interlaced video signals (e.g. NTSC, 1080i) having two fields with one field containing all of the even scan lines and the other field containing all of the odd scanning lines. The fields by definition have missing scanning lines and thus missing pixels of those scanning lines.</p> <p>See Exhibit 8, p. 21:</p>

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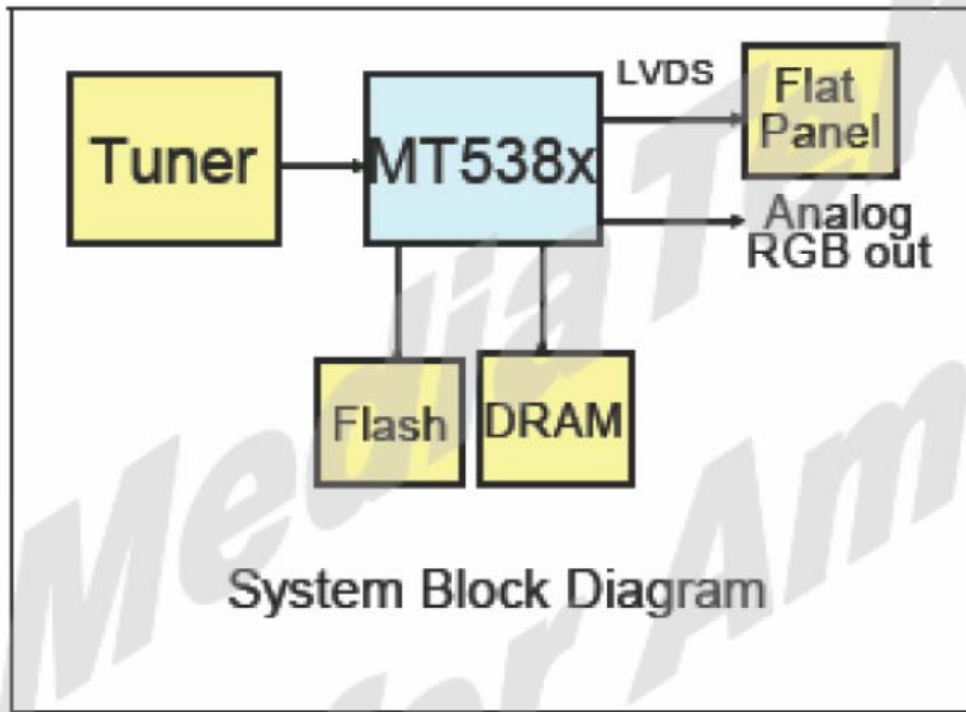


EXHIBIT C

Infringement Chart

U.S. Patent No. 6,239,842

Vizio Televisions or Displays with MediaTek MDDi Motion Adaptive Deinterlacing technology



See **Exhibit 10**, p. 31:

EXHIBIT C

Infringement Chart

U.S. Patent No. 6,239,842

Vizio Televisions or Displays with MediaTek MDDi Motion Adaptive Deinterlacing technology

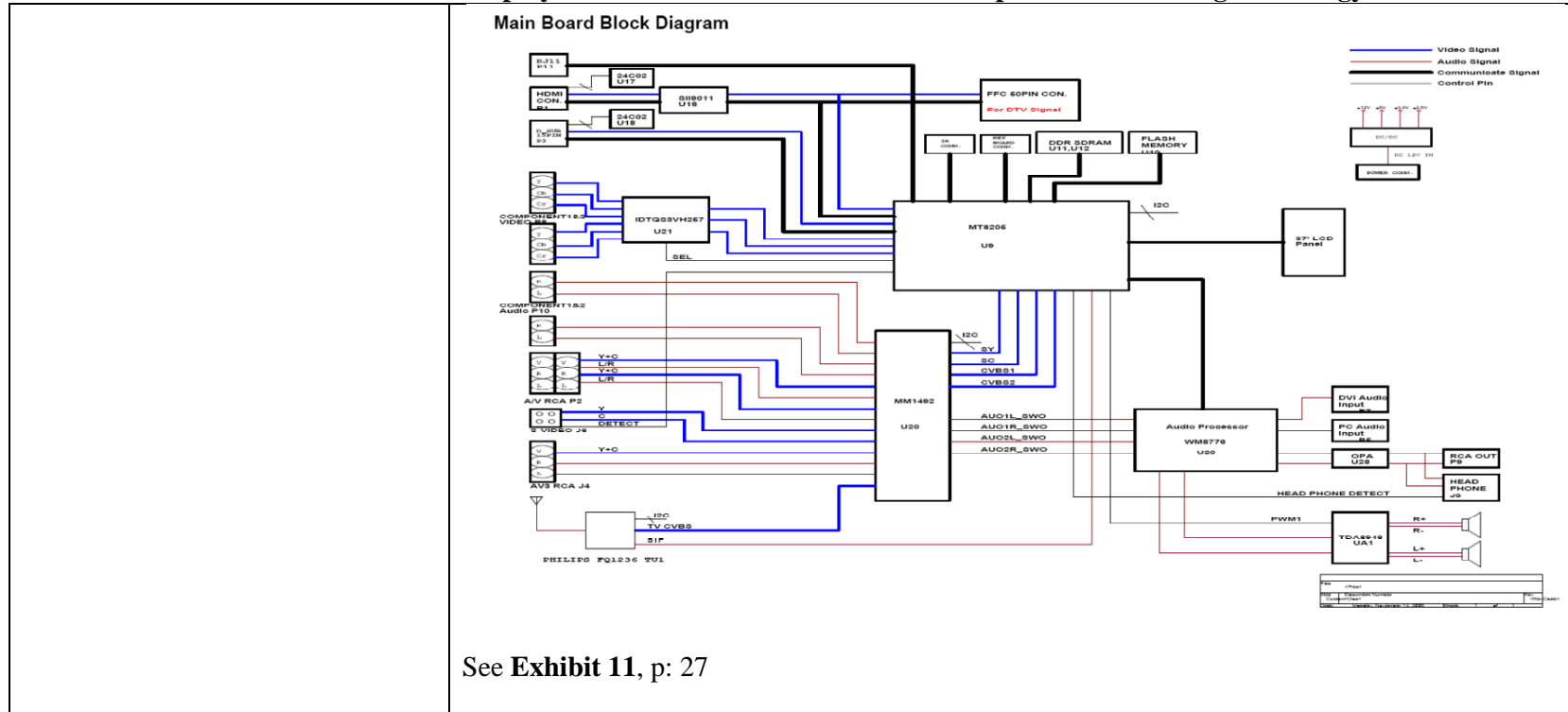


EXHIBIT C

Infringement Chart

U.S. Patent No. 6,239,842

Vizio Televisions or Displays with MediaTek MDDi Motion Adaptive Deinterlacing technology

	<p>Main Board Block Diagram</p> <p>The diagram illustrates the main board architecture. On the left, various input ports are shown: HDMI (HDMI1, HDMI2, HDMI3), AV (AV1, AV2, AV3), VGA (VGA1, VGA2), and others. These inputs connect to a central processing unit (U20, MMT1482AF_P) and a video switch (U21, SOT51VND2F). The video switch connects to a video/audio system (PD42-LK Video/Audio System). The video/audio system includes a video processor (U9, MT8205) and an audio processor (U22, VM6776). The audio processor connects to an audio amplifier (U24, TDA8341) and an audio output (U22, VM6776). The diagram also shows connections to a display panel, an audio amplifier (U24), and an audio output (U22).</p>
<p>using a current spatial field featuring missing spatial pixels and said spatial pixels with known values, located in said sequence of said pixels,...</p>	<p>For interlaced video signals (e.g. NTSC, 1080i) by definition the current spatial field has missing scan lines and thus missing pixels of those scan lines with the purpose of deinterlacing being to recreate (at least) those scan lines. The missing spatial pixels are (because they are missing) of unknown value in that field and the included spatial pixels of the included scan lines have known values.</p> <p>The MDDi algorithm is a motion adaptive de-interlacer. (e.g. Exhibit 8, p. 26; Exhibit 9, p. 29; Exhibit 10, p. 38 and 43; Exhibit 11, p. 34). See also, e.g., MediaTek U.S. Patent No. 7,286,186 at Col. 1:48-56 (Exhibit 16):</p>

EXHIBIT C

Infringement Chart

U.S. Patent No. 6,239,842

Vizio Televisions or Displays with MediaTek MDDi Motion Adaptive Deinterlacing technology

	<p>However, using the motion-adaptive de-interlacing method is the most efficient way to process interlaced to progressive conversion. The motion-adaptive de-interlacing method generally includes two steps. The first step involves processing motion detection, which means detecting a motion situation by checking a fix number of video fields of the interlaced video signal. Then, the second step involves selecting a proper interpolation algorithm according to the detected motion situation.</p>
and one temporal field featuring temporal pixels with known values, located in said sequence of said fields,...	<p>Temporal fields include the immediately previous and immediately next fields as set for the in the standards of the received video signal (e.g. NTSC, 1080i) and like the current spatial field above have pixels with known values.</p> <p>The MDDi algorithm is a motion adaptive de-interlacer. (e.g. Exhibit 8, p. 26; Exhibit 9, p. 29; Exhibit 10, p. 38 and 43; Exhibit 11, p. 34). See also, e.g., MediaTek U.S. Patent No. 7,286,186 at Col. 1:48-56 (Exhibit 16):</p> <p>However, using the motion-adaptive de-interlacing method is the most efficient way to process interlaced to progressive conversion. The motion-adaptive de-interlacing method generally includes two steps. The first step involves processing motion detection, which means detecting a motion situation by checking a fix number of video fields of the interlaced video signal. Then, the second step involves selecting a proper interpolation algorithm according to the detected motion situation.</p>
...for determining values of said missing pixels of said current spatial field;	<p>The current spatial field and temporal field are used to determine the values of the missing pixels of the current spatial field, i.e. MDDi operates to perform deinterlacing of the current spatial field thus creating a progressive field (or frame).</p> <p>The MDDi algorithm is a motion adaptive de-interlacer. (e.g. Exhibit 8, p. 26; Exhibit 9, p. 29; Exhibit 10, p. 38 and 43; Exhibit 11, p. 34). See also, e.g., MediaTek U.S. Patent No. 7,286,186 at Col. 1:48-56 (Exhibit 16):</p>

#8201

EXHIBIT C

Infringement Chart

U.S. Patent No. 6,239,842

Vizio Televisions or Displays with MediaTek MDDi Motion Adaptive Deinterlacing technology

	<p>However, using the motion-adaptive de-interlacing method is the most efficient way to process interlaced to progressive conversion. The motion-adaptive de-interlacing method generally includes two steps. The first step involves processing motion detection, which means detecting a motion situation by checking a fix number of video fields of the interlaced video signal. Then, the second step involves selecting a proper interpolation algorithm according to the detected motion situation.</p>
<p>evaluating logical operations of linear combinations of values selected from the group consisting of averages of said known values of said spatial pixels, averages of said known values of said temporal pixels, standard deviations of said known values of said spatial pixels, standard deviations of said known values of said temporal pixels, minimums of said standard deviations of said known values of said spatial pixels, absolute values of differences between said averages of said known values of said temporal pixels and said known values of said spatial pixels, said known values of said spatial pixels, and a plurality of constants,</p>	<p>The MDDi algorithm is a motion adaptive de-interlacer. (e.g. Exhibit 8, p. 26; Exhibit 9, p. 29; Exhibit 10, p. 38 and 43; Exhibit 11, p. 34). See also, e.g., MediaTek U.S. Patent No. 7,286,186 at Col. 1:48-56 (Exhibit 16):</p> <p>However, using the motion-adaptive de-interlacing method is the most efficient way to process interlaced to progressive conversion. The motion-adaptive de-interlacing method generally includes two steps. The first step involves processing motion detection, which means detecting a motion situation by checking a fix number of video fields of the interlaced video signal. Then, the second step involves selecting a proper interpolation algorithm according to the detected motion situation.</p> <p>The MDDi algorithm analyzes pixels from multiple fields, comparing values of pixels at similar spatial locations but different times, and makes interpolations using averages of known values. Thus, logical operations are evaluated of linear combinations of values selected from the group consisting of averages of said known values of said spatial pixels, averages of said known values of temporal pixels, standard deviations of said known values of said spatial pixels, standard deviations of said known values of said temporal pixels, minimums of said standard deviations of said known values of said spatial pixels, absolute values of differences between said averages of said known values of said temporal pixels and said known values of said spatial pixels, said known values of said spatial pixels, and a plurality of constants.</p> <p>See, e.g., MediaTek U.S. Patent No. 6,456,329, Col. 4:45-64 (Exhibit 15):</p>

#8202

EXHIBIT C

Infringement Chart

U.S. Patent No. 6,239,842

Vizio Televisions or Displays with MediaTek MDDi Motion Adaptive Deinterlacing technology

	<p>FIG. 4 is a diagram illustrating the relative spatial positions of a sequence of pixel-containing lines of a portion of one image field and a transformation thereof to remove the about one-half line spatial offset or misalignment that produces the aforementioned vertical jitter. A suitable transformation (or filtering) is one that interpolates, such as by simple averaging, the pixels of two adjacent lines of one of the two NTSC interlaced fields and substitutes the averaged line therefor. Where the transformation operates on the lines of field B, for example, as in FIG. 4, an interpolation by averaging is performed by adding the values of adjacent lines a and b of field B and dividing the sum by two, the result being the averaged line a' of transformed or filtered field B'. Similarly, lines b and c of field B are likewise averaged to produce the averaged line b' of transformed field B'.</p> <p>Preferably, the values of pixels at corresponding horizontal positions along each of the lines are transformed to produce a pixel value for the pixel at that particular position in the transformed line. Also preferably, the transformation</p> <p>Therefore, the best combination of these most likely correct linear combinations to be used to generate the values of the missing pixels are evaluated by logical operations.</p>
said logical operations selected from the group consisting of greater than, greater than or equal to, less than, less than or equal to, 'and', 'or', and 'xor'; and	The logical operations are selected from the group consisting of greater than, greater than or equal to, less than, less than or equal to, 'and', 'or', and 'xor' which are all Boolean logic operations commonly utilized in digital logic circuitry used to implement the MDDi portion of the MediaTek IC.
deciding upon assignment of said values to said missing spatial pixels according to results of said logical operations.	Based on the logical operations the MDDi circuit makes the assignment of the values to the missing spatial pixels according to the results thus completing the deinterlacing operation.
Claim 15	
15. The method of claim 14, wherein said one temporal field featuring said temporal pixels with	In order for the MDDi circuit to perform 3:2 pulldown deinterlacing it is necessary to utilize both the immediate previous and immediate next temporal field in order that the 3 field exposure of one film frame may be distinguished from 2 field and 1 field exposures thereby

EXHIBIT C

Infringement Chart

U.S. Patent No. 6,239,842

Vizio Televisions or Displays with MediaTek MDDi Motion Adaptive Deinterlacing technology

said known values is selected from the group consisting of immediate previous said temporal field to said current spatial field located in said sequence of said fields, and immediate next said temporal field to said current spatial field located in said sequence of said fields.	ensuring that at least one of the group of immediate previous and immediate next temporal field is utilized as said one temporal field.
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Attorneys for Plaintiff
Oplus Technologies, Ltd.

IN THE UNITED STATES DISTRICT COURT
FOR THE CENTRAL DISTRICT OF CALIFORNIA
WESTERN DIVISION

OPLUS TECHNOLOGIES, LTD.,

Plaintiff,

v.

SEARS HOLDINGS CORPORATION
and VIZIO, INC.,

Defendants.

Case No. CV12-5707 MRP (Ex)

*Assigned to the Honorable Mariana R.
Pfaelzer*

**PLAINTIFF'S FIRST SET OF
INTERROGATORIES (NOS. 1-3)**

JURY TRIAL DEMANDED

1 In accordance with Fed.R.Civ.P. 33, Plaintiff Oplus Technologies, Ltd.
2 (“Oplus”), propounds the following interrogatories to be answered separately and
3 under oath by an officer or agent of VIZIO, Inc. (“VIZIO”) within thirty (30) days
4 after service. The following interrogatories are to be deemed continuing, requiring
5 prompt supplemental answers whenever the conditions of Fed.R.Civ.P. 26(e) are
6 satisfied.

7 DEFINITIONS

8 1. The terms “Plaintiff” and “Oplus” mean Oplus Technologies, Ltd.

9 2. The terms “Defendant” and “VIZIO” refer to VIZIO, Inc. and any of
10 its respective predecessors, successors, parents, subsidiaries, divisions, related
11 companies and other business entities controlled by it, as well as its officers,
12 directors, employees, agents, and each person acting or purporting to act on its
13 behalf or under its control.

14 3. The term “Patents-in-Suit” refers to U.S. Patent No. 6,239,842 entitled
15 “Method of De-Interlacing Video Signals Using a Mixed Mode Spatial and
16 Temporal Approximation Technique” (the “‘842 Patent”) and U.S. Patent No.
17 7,271,840 entitled “Method for Determining Entropy of a Pixel of a Real Time
18 Streaming Digital Video Image Signal, and Applications Thereof” (the “‘840
19 Patent”).

20 4. The term “person” refers to both natural persons and to corporate or
21 other business entities, whether or not in the employ of Defendant, and the acts of a
22 person are defined to include the acts of directors, officers, owners, members,
23 employees, agents or attorneys acting on the person's behalf.

7. “Thing” means any tangible item, and shall be construed as broadly as possible under the Federal Rules.

9. The term “relevant” means documents, things and other information which are relevant in the sense of Fed.R.Civ.P. 26 or Fed.R.Evid. 401-02; or which Defendant intends to use to support its allegations or defenses; or which tend to prove or disprove any allegations or defenses of Plaintiff.

-3-

on, in respect of, about, regarding, discussing, evidencing, showing, describing, reflecting, analyzing and/or constituting.

INTERROGATORIES

1. Identify all VIZIO products manufactured and/or sold from 2006 through the present that utilize Silicon Optix HQV technology and the total volume of sales (in gross revenue and unit quantity) for each such product. A complete response to this interrogatory should identify documents sufficient to show the operation of such products, and identify persons with knowledge relating to the operation of such products.

2. Identify all VIZIO products manufactured and/or sold from 2006 through the present that utilize Faroudja DCDi technology and the total volume of sales (in gross revenue and unit quantity) for each such product. A complete response to this interrogatory should identify documents sufficient to show the operation of such products, and identify persons with knowledge relating to the operation of such products.

3. Identify all VIZIO products manufactured and/or sold from 2006 through the present that utilize MediaTek motion adaptive de-interlacing technology and the total volume of sales (in gross revenue and unit quantity) for each such product. A complete response to this interrogatory should identify documents sufficient to show the operation of such products, and identify persons with knowledge relating to the operation of such products.

Respectfully submitted,

/s/ Gabriel I. Opatken

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Attorneys for Oplus Technologies, Ltd.

CERTIFICATE OF SERVICE

The undersigned hereby certifies that on August 17, 2012 the foregoing

PLAINTIFF'S FIRST SET OF INTERROGATORIES (NOS. 1-3)

was filed with the Clerk of Court using the CM/ECF system, which will then send a notification of such filing to the following counsel of record:

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Attorneys for VIZIO, Inc.

I certify that all parties in this case are represented by counsel who are CM/ECF participants.

/s/ Gabriel I. Opatken
Attorneys for Oplus Technologies, Ltd.

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Attorneys for
Defendant VIZIO, Inc.

UNITED STATES DISTRICT COURT
CENTRAL DISTRICT OF CALIFORNIA
WESTERN DIVISION

OPLUS TECHNOLOGIES, LTD.,

Plaintiff,

v.

SEARS HOLDINGS CORPORATION,
VIZIO, INC.,

Defendants.

CASE NO.: CV12-5707 MRP (E)

Hon. Mariana R. Pfaelzer

**DEFENDANT VIZIO INC.'S
OBJECTIONS AND RESPONSES TO
PLAINTIFF OPLUS
TECHNOLOGIES, LTD.'S FIRST
SET OF INTERROGATORIES**

specifically stated in response to each Interrogatory, and are not waived or in any way limited by the following responses

12. VIZIO's responses are based upon information presently known to VIZIO. As VIZIO has not yet completed its investigation of the facts relating to this action, and has not yet reviewed all materials relating to this action, interviewed all witnesses in this action, and has not yet completed its preparation for trial, VIZIO reserves the right to amend and/or supplement its responses to these Interrogatories if and when additional facts or documents are discovered. Additionally, because VIZIO's responses are based on facts and documents that VIZIO has indentified to date, they do not preclude VIZIO from later relying on facts or documents discovered or generated pursuant to subsequent investigation or discovery. VIZIO's partial response to any Interrogatory is not to be construed as a waiver of any of its rights to object to any other Interrogatory.

SPECIFIC RESPONSES AND OBJECTIONS

INTERROGATORY NO. 1:

Identify all VIZIO products manufactured and/or sold from 2006 through the present that utilize Silicon Optix HQV technology and the total volume of sales (in gross revenue and unit quantity) for each such product. A complete response to this interrogatory should identify documents sufficient to show the operation of such products, and identify persons with knowledge relating to the operation of such products.

RESPONSE TO INTERROGATORY NO. 1:

VIZIO incorporates by reference each of the foregoing General Objections.

VIZIO objects to this Interrogatory as improperly compound as it calls for information on at least four distinct subjects:

- (1) The identity of VIZIO products utilizing Silicon Optix HQV technology;
- (2) The total volume of sales in gross revenue and unit quantity for VIZIO products utilizing Silicon Optix HQV technology;

(3) The identity of documents showing operation of VIZIO products utilizing Silicon Optix HQV technology; and

(4) The identity of persons with knowledge relating to the operation of VIZIO products utilizing Silicon Optix HQV technology.

To the extent the number of interrogatories served by Oplus, including each of the four subparts contained in this Interrogatory, exceed 25 as permitted by Federal Rule of Civil Procedure 33(a)(1), such interrogatories should be stricken absent a court order pursuant to Federal Rule of Civil Procedure 26(b)(2).

VIZIO objects to this Interrogatory to the extent it calls for information protected by the attorney-client privilege, the work product doctrine, or any other applicable exemption from discovery. VIZIO further objects to this Interrogatory as calling for confidential and proprietary information. VIZIO further objects to this Interrogatory as overly broad, unduly burdensome, and harassing as it calls for all VIZIO products that utilize Silicon Optix HQV technology and all sales from 2006 to the present. VIZIO further objects to this Interrogatory on the grounds that this Interrogatory seeks information that is not relevant to this action or likely to lead to the discovery of admissible evidence. VIZIO further objects to the extent this Interrogatory seeks information that is publicly available, and hence equally available to all parties to this litigation, or not in VIZIO's possession, custody, or control.

VIZIO further objects to this interrogatory as vague and ambiguous to the extent the phrase "utilize Silicon Optix HQV technology" is not defined or understood.

VIZIO further objects to this Interrogatory as premature to the extent it calls for sales information for products related to claims of infringement that may not survive claim construction, which has not yet occurred.

INTERROGATORY NO. 2:

Identify all VIZIO products manufactured and/or sold from 2006 through the present that utilize Faroudja DCDi technology and the total volume of sales (in gross

1 revenue and unit quantity) for each such product. A complete response to this
2 interrogatory should identify documents sufficient to show the operation of such
3 products, and identify persons with knowledge relating to the operation of such
4 products.

5 **RESPONSE TO INTERROGATORY NO. 2:**

6 VIZIO incorporates by reference each of the foregoing General Objections.

7 VIZIO objects to this Interrogatory as improperly compound as it calls for
8 information on at least four distinct subjects:

- 9 (1) The identity of VIZIO products utilizing Faroudja DCDi technology;
- 10 (2) The total volume of sales in gross revenue and unit quantity for VIZIO
- 11 products utilizing Faroudja DCDi technology;
- 12 (3) The identity of documents showing operation of VIZIO products utilizing
- 13 Faroudja DCDi technology; and
- 14 (4) The identity of persons with knowledge relating to the operation of VIZIO
- 15 products utilizing Faroudja DCDi technology.

16 To the extent the number of interrogatories served by Oplus, including each of the
17 four subparts contained in this Interrogatory, exceed 25 as permitted by Federal Rule
18 of Civil Procedure 33(a)(1), such interrogatories should be stricken absent a court
19 order pursuant to Federal Rule of Civil Procedure 26(b)(2).

20 VIZIO objects to this Interrogatory to the extent it calls for information
21 protected by the attorney-client privilege, the work product doctrine, or any other
22 applicable exemption from discovery. VIZIO further objects to this Interrogatory as
23 calling for confidential and proprietary information. VIZIO further objects to this
24 Interrogatory as overly broad, unduly burdensome, and harassing as it calls for all
25 VIZIO products that utilize Faroudja DCDi technology and all sales from 2006 to the
26 present. VIZIO further objects to this Interrogatory on the grounds that this
27 Interrogatory seeks information that is not relevant to this action or likely to lead to
28 the discovery of admissible evidence. VIZIO further objects to the extent this

1 Interrogatory seeks information that is publicly available, and hence equally available
2 to all parties to this litigation, or not in VIZIO's possession, custody, or control.

3 VIZIO further objects to this interrogatory as vague and ambiguous to the
4 extent the phrase "utilize Faroudja DCDi technology" is not defined or understood.

5 VIZIO further objects to this Interrogatory as premature to the extent it calls for
6 sales information for products related to claims of infringement that may not survive
7 claim construction, which has not yet occurred.

8 **INTERROGATORY NO. 3:**

9 Identify all VIZIO products manufactured and/or sold from 2006 through the
10 present that utilize MediaTek motion adaptive de-interlacing technology and the total
11 volume of sales (in gross revenue and unit quantity) for each such product. A
12 complete response to this interrogatory should identify documents sufficient to show
13 the operation of such products, and identify persons with knowledge relating to the
14 operation of such products.

15 **RESPONSE TO INTERROGATORY NO. 3:**

16 VIZIO incorporates by reference each of the foregoing General Objections.

17 VIZIO objects to this Interrogatory as improperly compound as it calls for
18 information on at least four distinct subjects:

19 (1) The identity of VIZIO products utilizing MediaTek motion adaptive de-
20 interlacing technology;

21 (2) The total volume of sales in gross revenue and unit quantity for VIZIO
22 products utilizing MediaTek motion adaptive de-interlacing technology;

23 (3) The identity of documents showing operation of VIZIO products utilizing
24 MediaTek motion adaptive de-interlacing technology; and

25 (4) The identity of persons with knowledge relating to the operation of VIZIO
26 products utilizing MediaTek motion adaptive de-interlacing technology.

27 To the extent the number of interrogatories served by Oplus, including each of the
28 four subparts contained in this Interrogatory, exceed 25 as permitted by Federal Rule

1 of Civil Procedure 33(a)(1), such interrogatories should be stricken absent a court
2 order pursuant to Federal Rule of Civil Procedure 26(b)(2).

3 VIZIO objects to this Interrogatory to the extent it calls for information
4 protected by the attorney-client privilege, the work product doctrine, or any other
5 applicable exemption from discovery. VIZIO further objects to this Interrogatory as
6 calling for confidential and proprietary information. VIZIO further objects to this
7 Interrogatory as overly broad, unduly burdensome, and harassing as it calls for all
8 VIZIO products that utilize MediaTek motion adaptive de-interlacing technology and
9 all sales from 2006 to the present. VIZIO further objects to this Interrogatory on the
10 grounds that this Interrogatory seeks information that is not relevant to this action or
11 likely to lead to the discovery of admissible evidence. VIZIO further objects to the
12 extent this Interrogatory seeks information that is publicly available, and hence
13 equally available to all parties to this litigation, or not in VIZIO's possession, custody,
14 or control.

15 VIZIO further objects to this interrogatory as vague and ambiguous to the
16 extent the phrases "utilize MediaTek motion adaptive de-interlacing technology" and
17 "MediaTek motion adaptive de-interlacing technology" are not defined or understood.

18 VIZIO further objects to this Interrogatory as premature to the extent it calls for
19 sales information for products related to claims of infringement that may not survive
20 claim construction, which has not yet occurred.

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IN THE UNITED STATES DISTRICT COURT
FOR THE CENTRAL DISTRICT OF CALIFORNIA
WESTERN DIVISION

OPLUS TECHNOLOGIES, LTD.,

Plaintiff,

v.

SEARS HOLDINGS CORPORATION
and VIZIO, INC.,

Defendants.

Case No. CV12-5707 MRP (Ex)

Honorable Mariana R. Pfaelzer

**PLAINTIFF'S AMENDED
INTERROGATORIES (NOS. 1-20)
TO VIZIO, INC.**

JURY TRIAL DEMANDED

1 In accordance with Fed.R.Civ.P. 33, Plaintiff Oplus Technologies, Ltd.
2 (“Oplus”) propounds the following Amended Interrogatories to be answered
3 separately and under oath by an officer or agent of VIZIO, Inc. (“VIZIO” or
4 “Defendant”) within thirty (30) days after service. The following Amended
5 Interrogatories Nos. 1 through 20 amend and replace Original Interrogatories Nos.
6 1 through 12. VIZIO only attempted to provide responses to Original
7 Interrogatories Nos. 5, 6 and 10 (which are included herein in their original form as
8 Amended Interrogatories Nos. 4, 5, 8, 9 and 10). The following Amended
9 Interrogatories are to be deemed continuing, requiring prompt supplemental
10 answers whenever the conditions of Fed.R.Civ.P. 26(e) are satisfied.

11 **DEFINITIONS**

- 12 1. The terms “Plaintiff” and “Oplus” mean Oplus Technologies, Ltd.
- 13 2. The terms “Defendant” and “VIZIO” refer to VIZIO, Inc. and any of
14 its respective predecessors, successors, parents, subsidiaries, divisions, related
15 companies and other business entities controlled by it, as well as its officers,
16 directors, employees, agents, and each person acting or purporting to act on its
17 behalf or under its control.
- 18 3. The term “Patents-in-Suit” refers to U.S. Patent No. 6,239,842 entitled
19 “Method of De-Interlacing Video Signals Using a Mixed Mode Spatial and
20 Temporal Approximation Technique” (the “‘842 Patent”) and U.S. Patent No.
21 7,271,840 entitled “Method for Determining Entropy of a Pixel of a Real Time

1 Streaming Digital Video Image Signal, and Applications Thereof” (the “840
2 Patent”).

3 4. The term “person” refers to both natural persons and to corporate or
4 other business entities, whether or not in the employ of Defendant, and the acts of a
5 person are defined to include the acts of directors, officers, owners, members,
6 employees, agents or attorneys acting on the person's behalf.

7 5. To “identify a person” means to state the person’s name, business
8 address and telephone number, and additionally, in the case of a natural person, his
9 or her home address, employer, present occupation, job title, email address and
10 telephone number.

11 6. “Document(s)” refers to the broadest definition of document and
12 electronically stored information under the Federal Rules, e.g., anything which
13 would be a “writing” or “recording” pursuant to Rule 1001(1) of the Federal Rules
14 of Evidence or “document” or “electronically stored information” pursuant to Rule
15 34(a) of the Federal Rules of Civil Procedure. A draft or a non-identical copy is a
16 separate document within the meaning of this term.

17 7. “Thing” means any tangible item, and shall be construed as broadly as
18 possible under the Federal Rules.

19 8. To “identify” or “locate” documents means to provide a brief
20 description of each document sufficient to support a request for production,
21 including at least the type of document, date of the document, identification of the
22
23

1 author, as well as an identification of each person who presently has custody of the
2 document and of any copy thereof.

3 9. The term “relevant” means documents, things and other information
4 which are relevant in the sense of Fed.R.Civ.P. 26 or Fed.R.Evid. 401-02; or which
5 Defendant intends to use to support its allegations or defenses; or which tend to
6 prove or disprove any allegations or defenses of Plaintiff.

7 10. The terms “relate to,” “relating to” or “related to” mean relevant to,
8 referring to, alluding to, responding to, concerning, connected with, commenting
9 on, in respect of, about, regarding, discussing, evidencing, showing, describing,
10 reflecting, analyzing and/or constituting.

11 11. The term “Relevant Products” refers to (1) the products identified in
12 Oplus’s Initial Infringement Contentions, served on August 9, 2012, (2) any
13 products manufactured and/or sold from 2006 to the present that utilize, embody or
14 otherwise incorporate Silicon Optix HQV technology, (3) any products
15 manufactured and/or sold from 2006 to the present that utilize, embody or
16 otherwise incorporate Faroudja DCDi technology, and (4) any products
17 manufactured and/or sold from 2006 to the present that utilize, embody or
18 otherwise incorporate MediaTek motion adaptive de-interlacing technology.

19 12. The term “Asserted Claims” refers to the patent claims identified in
20 Oplus’s Initial Infringement Contentions, served on August 9, 2012.

AMENDED INTERROGATORIES

Amended Interrogatory No. 1:

Identify all Relevant Products by product number, trade name, and/or other designation.

Amended Interrogatory No. 2:

Identify persons with knowledge relating to the operation of all Relevant Products.

Amended Interrogatory No. 3:

State and describe in detail the complete factual basis for VIZIO's Fourth Affirmative Defense that "by reason of prior art and the proceedings in the United States Patent and Trademark Office during the prosecution of the applications, and all applications to which the '842 or '840 Patents claim priority, that led to the issuance of the '842 and '840 Patents, including without limitation, amendments, representations, concessions, and admissions made by or on behalf of the applicant, Oplus is estopped from asserting that the claims of the '842 and '840 Patents cover and include the devices, methods or acts of VIZIO under the doctrine of equivalents."

Amended Interrogatory No. 4 (Original Interrogatory No. 5, previously answered):

State and describe in detail the complete factual basis for VIZIO's Fifth Affirmative Defense that "Oplus lacks standing to bring this action because it lacks all substantial rights in the '842 and '840 Patents."

Amended Interrogatory No. 5 (Original Interrogatory No. 6, previously answered):

State and describe in detail the complete factual basis for VIZIO's Seventh Affirmative Defense that "Oplus delayed filing suit for an unreasonable and inexcusable length of time from when they knew or reasonably should have known of VIZIO's allegedly infringing products. This delay has prejudiced and injured VIZIO."

Amended Interrogatory No. 6:

State and describe in detail the complete factual basis for VIZIO's Eighth Affirmative Defense that "Oplus is limited in its right to seek damages due to a failure to mark products covered by the '842 or '840 Patents or otherwise provide notice of alleged infringement of the '842 or '840 Patents to VIZIO."

Amended Interrogatory No. 7:

State the annual sales and gross profits by product for each of the Relevant Products and any additional products identified in response to Interrogatory No. 1, dating back to the year when each product was first publicly introduced in the United States or 2006 (whichever is later).

Amended Interrogatories Nos. 8, 9 and 10 (Original Interrogatory No. 10, previously answered):

(8) Identify each person Defendant expects to call as a witness at trial, excluding expert witnesses, and for each such person identified, (9) state the subject matter of the testimony to be provided and (10) identify all documents and

1 persons consulted or to be consulted by each such witness in preparation for his or
2 her testimony.

3 Amended Interrogatory Nos. 11 and 12:

4 (11) State and describe in detail the design and development history of each
5 of the Relevant Products from 2006 to the present including the date that
6 design/development commenced and the identity of all versions of the Relevant
7 Products. (12) Identify the person(s) most knowledgeable about the subject matter
8 of Defendant's response to this Interrogatory.

9 Amended Interrogatories Nos. 13, 14, 15 and 16:

10 (13) Identify and describe in detail the factual bases for VIZIO's claims,
11 contentions and/or allegations that it has not infringed the Asserted Claims of the
12 '840 Patent including by providing an element-by-element comparison of each
13 Asserted Claim of the '840 Patent with the Relevant Products. (14) For each
14 feature, element, part or component of any of the Asserted Claims of the '840
15 Patent that VIZIO alleges to be absent from the Relevant Products, state whether
16 any feature, element, part or component present in the Relevant Products performs
17 substantially the same or a similar function as the allegedly omitted element (and if
18 not, explain why not). (15) Identify and describe the factual bases, with reference
19 to specific page and line number of the prosecution history of the '840 Patent or
20 any related applications to the '840 Patent, for any reliance on the prosecution
21 history of the '840 Patent or its related applications in support of any non-
22 infringement contention, including any reliance on the doctrine of prosecution

1 history estoppel. (16) Identify each person having knowledge of each fact
2 supporting each contention identified in VIZIO's response to Interrogatories Nos.
3 13, 14 and 15.

4 Amended Interrogatories Nos. 17, 18, 19 and 20:

5 (17) Identify and describe in detail the factual bases for VIZIO's claims,
6 contentions and/or allegations that it has not infringed the Asserted Claims of the
7 '842 Patent including by providing an element-by-element comparison of each
8 Asserted Claim of the '842 Patent with the Relevant Products. (18) For each
9 feature, element, part or component of any of the Asserted Claims of the '842
10 Patent that VIZIO alleges to be absent from the Relevant Products, state whether
11 any feature, element, part or component present in the Relevant Products performs
12 substantially the same or a similar function as the allegedly omitted element (and if
13 not, explain why not). (19) Identify and describe the factual bases, with reference
14 to specific page and line number of the prosecution history of the '842 Patent or
15 any related applications to the '842 Patent, for any reliance on the prosecution
16 history of the '842 Patent or its related applications in support of any non-
17 infringement contention, including any reliance on the doctrine of prosecution
18 history estoppel. (20) Identify each person having knowledge of each fact
19 supporting each contention identified in VIZIO's response to Interrogatories Nos.
20 17, 18 and 19.

Respectfully submitted,

/s/ Gabriel I. Opatken

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Attorneys for Oplus Technologies, Ltd.

CERTIFICATE OF SERVICE

The undersigned hereby certifies that on February 22, 2013 the foregoing
**PLAINTIFF'S AMENDED SET OF INTERROGATORIES (NOS. 1-20) TO
VIZIO, INC.**

was served via e-mail on the following counsel of record:

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Attorneys for
Defendant VIZIO, Inc.

UNITED STATES DISTRICT COURT
CENTRAL DISTRICT OF CALIFORNIA
WESTERN DIVISION

OPLUS TECHNOLOGIES, LTD.,

Plaintiff,

v.

SEARS HOLDINGS CORPORATION,
VIZIO, INC.,

Defendants.

CASE NO.: CV12-5707 MRP (E)

Hon. Mariana R. Pfaelzer

**DEFENDANT VIZIO INC.'S
OBJECTIONS AND RESPONSES TO
PLAINTIFF OPLUS
TECHNOLOGIES, LTD.'S
AMENDED INTERROGATORIES
(NOS. 1-20)**

Pursuant to Federal Rule of Civil Procedure 33, Defendant VIZIO, Inc. (“VIZIO”) hereby provides its objections and responses to Oplus Technologies, Ltd.’s (“Oplus”) Amended Interrogatories.

GENERAL OBJECTIONS

VIZIO generally objects to these Interrogatories and their accompanying Definitions and Instructions on the following grounds, which are incorporated into and made a part of VIZIO’s response to each and every individual Interrogatory:

1. VIZIO objects to the extent the Interrogatories seek to impose obligations upon VIZIO not required by the Federal Rules of Civil Procedure, the Local Rules for the United States District Court for the Central District of California (“Local Rules”), or the Orders of the Court. VIZIO’s responses shall be controlled by and comply with the requirements of the Federal Rules of Civil Procedure, the Local Rules, and the Orders of the Court.

2. VIZIO objects to the extent the Interrogatories call for the disclosure of information subject to the attorney-client privilege, the attorney work-product doctrine, or any other applicable privileges. Such information will not be provided.

3. VIZIO objects to the Interrogatories to the extent that they call for information which is confidential, commercially sensitive, or which constitute confidential financial or proprietary information or trade secrets or which are protected from disclosure by law or contract. To the extent VIZIO produces responsive information, such responses will be provided pursuant to a suitable Protective Order entered by the Court.

4. VIZIO objects to the definition of “Defendant” and “VIZIO” as including “any of [VIZIO’s] respective predecessors, successors, parents, subsidiaries, divisions, related companies and other business entities controlled by it, as well as its officers, directors, employees, agents, and each person acting or purporting to act on its behalf or under its control.” This definition is impermissibly vague, ambiguous, and overly broad, and renders any related requests unduly

1 burdensome, unreasonable, and oppressive. VIZIO shall limit the terms “Defendant”
2 and “VIZIO” to mean VIZIO, Inc.

3 5. VIZIO objects to the definition of “person” to the extent that it purports
4 to impose obligations greater than those set forth in the Federal Rules of Civil
5 Procedure.

6 6. VIZIO objects to the definition of “identify a person” to the extent that it
7 purports to impose obligations greater than those set forth in the Federal Rules of
8 Civil Procedure.

9 7. VIZIO objects to the definitions of “identify” and “locate” to the extent
10 that they purport to impose obligations greater than those set forth in the Federal
11 Rules of Civil Procedure.

12 8. VIZIO objects to the definition of “Relevant Products” to the extent it
13 implies that any of VIZIO’s products falling within Oplus’ overbroad definition are
14 relevant in any way to this case. As detailed in VIZIO counsel’s September 18, 2012
15 letter to Oplus counsel and in VIZIO’s portions of the Joint Stipulation re: Oplus’
16 Motion to Compel Production of Documents (Dkt. No. 114), the Infringement
17 Contentions provided by Oplus were drastically deficient, including because they are
18 vague, inconsistent, and ambiguous as to the particular technologies that Oplus
19 contends are infringing and because they fail to articulate how any of the accused
20 products and technologies allegedly infringe the asserted patents. Accordingly,
21 VIZIO further objects to Oplus’ unilateral designation of VIZIO products as
22 “relevant” without providing a valid basis, in an effort to conduct a fishing
23 expedition.

24 9. VIZIO’s General Objections shall be deemed continuing as to each
25 Interrogatory, incorporated in response to each Interrogatory whether or not
26 specifically stated in response to each Interrogatory, and are not waived or in any way
27 limited by the following responses.

28 10. VIZIO’s responses are based upon information presently known to

VIZIO. As VIZIO has not yet completed its investigation of the facts relating to this action, and has not yet reviewed all materials relating to this action, interviewed all witnesses in this action, and has not yet completed its preparation for trial, VIZIO reserves the right to amend and/or supplement its responses to these Interrogatories if and when additional facts or documents are discovered. Additionally, because VIZIO's responses are based on facts and documents that VIZIO has indentified to date, they do not preclude VIZIO from later relying on facts or documents discovered or generated pursuant to subsequent investigation or discovery. VIZIO's partial response to any Interrogatory is not to be construed as a waiver of any of its rights to object to any other Interrogatory.

SPECIFIC RESPONSES AND OBJECTIONS

AMENDED INTERROGATORY NO. 1:

Identify all Relevant Products by product number, trade name, and/or other designation.

RESPONSE TO AMENDED INTERROGATORY NO. 1:

VIZIO incorporates by reference each of the foregoing General Objections.

VIZIO further objects to this Interrogatory on the grounds that this Interrogatory seeks information that is not relevant to this action or likely to lead to the discovery of admissible evidence. VIZIO further objects to the extent this Interrogatory seeks information that is publicly available, and hence equally available to all parties to this litigation.

Subject to and without waiver of the foregoing general and specific objections, VIZIO responds as follows:

Pursuant to Rule 33(d) of the Federal Rules of Civil Procedure, and upon entry of a suitable protective order, VIZIO will produce non-privileged documents responsive to this request to the extent they exist and have not been produced.

AMENDED INTERROGATORY NO. 2:

Identify persons with knowledge relating to the operation of all Relevant

1 Products.

2 **RESPONSE TO AMENDED INTERROGATORY NO. 2:**

3 VIZIO incorporates by reference each of the foregoing General Objections.
4 VIZIO further objects to this request as vague and ambiguous as to the term
5 “operation.”

6 Subject to and without waiver of the foregoing general and specific objections,
7 VIZIO responds as follows:

8 VIZIO does not design or manufacture the accused products. For purposes of
9 this case, VIZIO believes that the parties who supply these products and their
10 components have the most knowledge regarding their operation. Specifically, the
11 companies that developed and/or currently own the rights to the three proprietary
12 technologies that Oplus has accused of infringement, *i.e.*, Silicon Optix HQV
13 technology, Faroudja DCDi technology, and MediaTek motion adaptive deinterlacing
14 technology (*see* Oplus’ Infringement Contentions at 2), have the most knowledge
15 regarding the design and development of these technologies.

16 **AMENDED INTERROGATORY NO. 3:**

17 State and describe in detail the complete factual basis for Vizio’s Fourth
18 Affirmative Defense that “by reason or prior art and the proceedings in the United
19 States Patent and Trademark Office during the prosecution of the applications, and all
20 applications to which the ‘842 or ‘840 Patents claim priority, that led to the issuance
21 of the ‘842 and ‘840 Patents, including without limitation, amendments,
22 representations, concessions, and admissions made by or on behalf of the applicant,
23 Oplus is estopped from asserting that the claims of the ‘842 and ‘840 Patents cover
24 and include the devices, methods or acts of VIZIO under the doctrine of equivalents.”

25 **RESPONSE TO AMENDED INTERROGATORY NO. 3:**

26 VIZIO incorporates by reference each of the foregoing General Objections.

27 VIZIO objects to this Interrogatory to the extent that it seeks information
28 protected from disclosure by the attorney-client privilege, the work product doctrine,

1 or any other applicable privilege or doctrine.

2 VIZIO further objects to this Interrogatory as improperly attempting to
3 circumvent both the timing and substance of the rules governing expert disclosures, as
4 well as the schedule in this case. *See, e.g.*, Order on Joint Stipulation re Scheduling
5 (Dkt. No. 86). To the extent this Interrogatory seeks premature expert discovery and
6 purports to impose burdens on VIZIO beyond those required by the Federal Rules, the
7 Local Rules, and the agreement of the parties, it is improper.

8 **AMENDED INTERROGATORY NO. 4:**

9 State and describe in detail the complete factual basis for Vizio's Fifth
10 Affirmative Defense that "Oplus lacks standing to bring this action because it lacks
11 all substantial rights in the '842 and '840 Patents."

12 **RESPONSE TO AMENDED INTERROGATORY NO. 4:**

13 VIZIO incorporates by reference each of the foregoing General Objections.

14 VIZIO objects to this Interrogatory to the extent that it seeks information
15 protected from disclosure by the attorney-client privilege, the work product doctrine,
16 or any other applicable privilege or doctrine.

17 Subject to and without waiver of the foregoing general and specific objections,
18 VIZIO responds as follows:

19 Based on the information and documents currently available to VIZIO
20 including the prosecution histories of the '842 and '840 Patents and the assignment
21 records in the United States Patent and Trademark Office, Oplus is not the current
22 assignee of either the '842 Patent or the '840 Patent and therefore lacked, and
23 continues to lack, standing to assert infringement of these patents. More specifically,
24 the assignment records in the United States Patent and Trademark Office currently
25 indicate that the '842 and '840 Patents were assigned to Oplus Technologies, Ltd., on
26 December 16, 1998 and October 30, 2002, respectively. However, Plaintiff Oplus has
27 claimed that the "Oplus Technologies, Ltd." listed in the assignment records in the
28 United States Patent and Trademark Office is not the same entity that filed this patent

1 infringement action against VIZIO. *See* Oplus' Response to Interrogatory No. 8
2 (stating that Oplus Technologies, Ltd. (Israel) was a **prior assignee** to the patents in
3 suit).

4 **AMENDED INTERROGATORY NO. 5:**

5 State and describe in detail the complete factual basis for Vizio's Seventh
6 Affirmative Defense that "Oplus delayed filing suit for an unreasonable and
7 inexcusable length of time from when they knew or reasonably should have known of
8 VIZIO's allegedly infringing products. This delay has prejudiced and injured VIZIO."

9 **RESPONSE TO AMENDED INTERROGATORY NO. 5:**

10 VIZIO incorporates by reference each of the foregoing General Objections.

11 VIZIO objects to this Interrogatory to the extent that it seeks information
12 protected from disclosure by the attorney-client privilege, the work product doctrine,
13 or any other applicable privilege or doctrine.

14 Subject to and without waiver of the foregoing general and specific objections,
15 VIZIO responds as follows:

16 The '842 and '840 Patents issued on May 29, 2001 and September 18, 2007,
17 respectively. VIZIO's televisions accused of infringement were on the market, and
18 Oplus knew or reasonably should have known of these products, but Oplus delayed
19 filing this suit until December 2011. VIZIO has been prejudiced by Oplus'
20 unreasonable and inexcusable delay because it is difficult to locate documents and
21 witnesses with information regarding the accused products, and because VIZIO has
22 been selling these products unaware that their right to do so would be challenged by
23 Oplus.

24 **AMENDED INTERROGATORY NO. 6:**

25 State and describe in detail the complete factual basis for Vizio's Eighth
26 Affirmative Defense that "Oplus is limited in its right to seek damages due to a failure
27 to mark products covered by the '842 or '840 Patents or otherwise provide notice of
28 alleged infringement of the '842 or '840 Patents to VIZIO."

RESPONSE TO AMENDED INTERROGATORY NO. 6:

VIZIO incorporates by reference each of the foregoing General Objections.

VIZIO objects to this Interrogatory to the extent that it seeks information protected from disclosure by the attorney-client privilege, the work product doctrine, or any other applicable privilege or doctrine.

Subject to and without waiver of the foregoing general and specific objections, VIZIO responds as follows:

35 U.S.C. § 287(a) states as follows:

Patentees, and persons making, offering for sale, or selling within the United States any patented article for or under them, or importing any patented article into the United States, may give notice to the public that the same is patented, either by fixing thereon the word "patent" or the abbreviation "pat.", together with the number of the patent, or by fixing thereon the word "patent" or the abbreviation "pat." together with an address of a posting on the Internet, accessible to the public without charge for accessing the address, that associates the patented article with the number of the patent, or when, from the character of the article, this can not be done, by fixing to it, or to the package wherein one or more of them is contained, a label containing a like notice. In the event of failure so to mark, no damages shall be recovered by the patentee in any action for infringement, except on proof that the infringer was notified of the infringement and continued to infringe thereafter, in which event damages may be recovered only for infringement occurring after such notice. Filing of an action for infringement shall constitute such notice.

35 U.S.C. § 287(a).

At this time, VIZIO is unaware of any claims asserted by Oplus to which 35 U.S.C. § 287(a) applies. VIZIO, however, reserves the right to assert this defense should there be any change or clarification in the law.

AMENDED INTERROGATORY NO. 7:

State the annual sales and gross profits by product for each of the Relevant Products and any additional products identified in response to Interrogatory No. 1, dating back to the year when each product was first publicly introduced in the United States or 2006 (whichever is later).

RESPONSE TO AMENDED INTERROGATORY NO. 7:

VIZIO incorporates by reference each of the foregoing General Objections.

VIZIO further incorporates by reference each of its Specific Objections to Amended Interrogatory No. 1. VIZIO further objects to this Interrogatory as calling for confidential and proprietary information.

VIZIO further objects to the extent this Interrogatory as overly broad, unduly burdensome, harassing, and neither relevant to a claim or defense of a party nor reasonably calculated to lead to the discovery of admissible evidence to the extent it seeks information “dating back to the year when each product was first publicly introduced in the United States or 2006 (whichever is later).”

Subject to and without waiver of the foregoing general and specific objections, VIZIO responds as follows:

Pursuant to Rule 33(d) of the Federal Rules of Civil Procedure, and upon entry of a suitable protective order, VIZIO will produce non-privileged documents responsive to this request to the extent they exist and have not been produced.

AMENDED INTERROGATORY NOS. 8, 9, AND 10:

(8) Identify each person Defendant expects to call as a witness at trial, excluding expert witnesses, and for each such person identified, (9) state the subject matter of the testimony to be provided and (10) identify all documents and persons consulted or to be consulted by each such witness in preparation for his or her testimony.

RESPONSE TO AMENDED INTERROGATORIES NOS. 8, 9, AND 10:

VIZIO incorporates by reference each of the foregoing General Objections.

VIZIO objects to these Interrogatories to the extent they calls for information protected by the attorney-client privilege, the work product doctrine, or any other applicable exemption from discovery, including expert discovery and discovery of counsel’s trial strategy.

VIZIO further objects to this Interrogatory as improperly attempting to

1 circumvent both the timing and substance of the rules governing expert disclosures, as
2 well as the schedule in this case. *See, e.g.*, Order on Joint Stipulation re Scheduling
3 (Dkt. No. 86). To the extent this Interrogatory seeks premature expert discovery and
4 purports to impose burdens on VIZIO beyond those required by the Federal Rules, the
5 Local Rules, and the agreement of the parties, it is improper.

6 Subject to and without waiver of the foregoing general and specific objections,
7 VIZIO responds as follows:

8 VIZIO provided a list of individuals likely to have discoverable information
9 and the subjects of the information in its August 7, 2012 Rule 26(a) Initial
10 Disclosures. VIZIO has not yet determined which witnesses it will call at trial or the
11 subject matter of their testimony and will identify trial witnesses and disclose its
12 expert witnesses in accordance with the timing of these disclosures under the federal
13 and local rules and orders of the Court.

14 **AMENDED INTERROGATORY NOS. 11 AND 12:**

15 (11) State and describe in detail the design and development history of each of
16 the Relevant Products from 2006 to the present including the date that
17 design/development commenced and the identity of all versions of the Relevant
18 Products. (12) Identify the person(s) most knowledgeable about the subject matter of
19 Defendant's response to this Interrogatory.

20 **RESPONSE TO AMENDED INTERROGATORY NO. 11 AND 12:**

21 VIZIO incorporates by reference each of the foregoing General Objections.

22 VIZIO further objects to Amended Interrogatory No. 11 as improperly
23 compound as it calls for information on at least three distinct subjects:

- 24 (1) Description of the design and development history of each of the alleged
25 Relevant Products;
26 (2) The dates on which the design and/or development of each Relevant
27 Product commenced; and
28 (3) The identity of all versions of the alleged Relevant Products;

Each of these distinct subjects includes at least fourteen additional discrete subparts because they seek information about all of the accused products and Oplus has accused at least fourteen different VIZIO products. *See, e.g., Collaboration Properties, Inc. v. Polycom, Inc.*, 224 F.R.D. 473, 474-75 (N.D. Cal. 2004) (each interrogatory which sought information about all 26 accused products has 26 discrete subparts). To the extent the number of interrogatories served by Oplus, including each of the discrete subparts contained in these Interrogatories, exceed 25 as permitted by Federal Rule of Civil Procedure 33(a)(1), such interrogatories should be stricken absent a court order pursuant to Federal Rule of Civil Procedure 26(b)(2).

VIZIO further objects to these Interrogatories as calling for confidential and proprietary information.

VIZIO further objects to these Interrogatories as vague and ambiguous to the extent the phrases “design and development history,” and “versions” are not defined or understood.

VIZIO further objects to the extent these Interrogatories seek information that is publicly available, and hence equally available to all parties to this litigation, or not in VIZIO’s possession, custody, or control. *See, e.g.,* Oplus’ July 21, 2012 Judicial Panel on Multidistrict Litigation Reply Brief at 3 (“Plainly, none of the discovery to be had about the technical details of such accused products can be obtained in California.”).

Subject to and without waiver of the foregoing general and specific objections, VIZIO responds as follows:

VIZIO does not design or manufacture the accused products. For purposes of this case, VIZIO believes that the parties who supply these products and their components have the most knowledge regarding their design and development. Specifically, the companies that developed and/or currently own the rights to the three proprietary technologies that Oplus has accused of infringement, *i.e.,* Silicon Optix HQV technology, Faroudja DCDi technology, and MediaTek motion adaptive

deinterlacing technology (*see* Oplus' Infringement Contentions at 2), have the most knowledge regarding the design and development of these technologies. Kenneth Lowe, Vice President of VIZIO, has knowledge regarding VIZIO's products, including the development and features of VIZIO televisions.

Pursuant to Rule 33(d) of the Federal Rules of Civil Procedure, and upon entry of a suitable protective order, VIZIO will also produce non-privileged documents responsive to this interrogatory to the extent they exist and have not been produced.

AMENDED INTERROGATORY NOS. 13, 14, 15 AND 16:

(13) Identify and describe in detail the factual bases for VIZIO's claims, contentions and/or allegations that it has not infringed the Asserted Claims of the '840 Patent including by providing an element-by-element comparison of each Asserted Claim of the '840 Patent with the Relevant Products. (14) For each feature, element, part or component of any of the Asserted Claims of the '840 Patent that VIZIO alleges to be absent from the Relevant Products, state whether any feature, element, part or component present in the Relevant Products performs substantially the same or a similar function as the allegedly omitted element (and if not, explain why not). (15) Identify and describe the factual bases, with reference to specific page and line number of the prosecution history of the '840 Patent or any related applications to the '840 Patent, for any reliance on the prosecution history of the '840 Patent or its related applications in support of any non-infringement contention, including any reliance on the doctrine of prosecution history estoppel. (16) Identify each person having knowledge of each fact supporting each contention identified in VIZIO's response to Interrogatories Nos. 13, 14 and 15.

RESPONSE TO AMENDED INTERROGATORIES NOS. 13, 14, 15 AND 16:

VIZIO incorporates by reference each of the foregoing General Objections.

VIZIO further objects to these Interrogatories as improperly compound as they call for information on at least fourteen additional discrete subparts since they seek information about all of the accused products and Oplus has accused at least fourteen

1 different VIZIO products. *See, e.g., Collaboration Properties, Inc. v. Polycom, Inc.*,
2 224 F.R.D. 473, 474-75 (N.D. Cal. 2004) (each interrogatory which sought
3 information about all 26 accused products has 26 discrete subparts). To the extent the
4 number of interrogatories served by Oplus, including each of the discrete subparts
5 contained in these Interrogatories, exceed 25 as permitted by Federal Rule of Civil
6 Procedure 33(a)(1), such interrogatories should be stricken absent a court order
7 pursuant to Federal Rule of Civil Procedure 26(b)(2).

8 VIZIO further objects to these Interrogatories to the extent that they seek
9 information protected from disclosure by the attorney-client privilege, the work
10 product doctrine, or any other applicable privilege or doctrine.

11 VIZIO further objects to these Interrogatories as calling for confidential and
12 proprietary information. VIZIO further objects to these Interrogatories as overly
13 broad, unduly burdensome, and harassing as they are not limited in either time or
14 scope.

15 VIZIO further objects to these Interrogatories as improperly attempting to
16 circumvent both the timing and substance of the rules governing expert disclosures, as
17 well as the schedule in this case. *See, e.g., Order on Joint Stipulation re Scheduling*
18 *(Dkt. No. 86)*. To the extent these Interrogatories seek premature expert discovery
19 and purport to impose burdens on VIZIO beyond those required by the Federal Rules,
20 the Local Rules, and the agreement of the parties, they are improper.

21 Subject to and without waiver of the foregoing general and specific objections,
22 VIZIO responds as follows:

23 VIZIO has retained a technical expert who will provide a report at the time
24 specified in the Court's scheduling order. *See Order on Joint Stipulation re*
25 *Scheduling (Dkt. No. 86)*.

26 At this time, VIZIO is unaware of any evidence showing that VIZIO infringes
27 any asserted claims of the '840 Patent. Oplus has also not provided any evidence that
28 anyone has used any accused VIZIO product to practice any asserted claim of the

1 '840 Patent. *See* September 18, 2012 letter to Oplus counsel, which is incorporated
2 by reference herein.

3 **AMENDED INTERROGATORY NOS. 17, 18, 19 AND 20:**

4 (17) Identify and describe in detail the factual bases for VIZIO's claims,
5 contentions and/or allegations that it has not infringed the Asserted Claims of the '842
6 Patent including by providing an element-by-element comparison of each Asserted
7 Claim of the '842 Patent with the Relevant Products. (18) For each feature, element,
8 part or component of any of the Asserted Claims of the '842 Patent that VIZIO
9 alleges to be absent from the Relevant Products, state whether any feature, element,
10 part or component present in the Relevant Products performs substantially the same or
11 a similar function as the allegedly omitted element (and if not, explain why not). (19)
12 Identify and describe the factual bases, with reference to specific page and line
13 number of the prosecution history of the '842 Patent or any related applications to the
14 '842 Patent, for any reliance on the prosecution history of the '842 Patent or its
15 related applications in support of any non-infringement contention, including any
16 reliance on the doctrine of prosecution history estoppel. (20) Identify each person
17 having knowledge of each fact supporting each contention identified in VIZIO's
18 response to Interrogatories Nos. 17, 18 and 19.

19 **RESPONSE TO AMENDED INTERROGATORIES NOS. 17, 18, 19 AND 20:**

20 VIZIO incorporates by reference each of the foregoing General Objections.

21 VIZIO further objects to these Interrogatories as improperly compound as they
22 call for information on at least fourteen additional discrete subparts since they seek
23 information about all of the accused products and Oplus has accused at least fourteen
24 different VIZIO products. *See, e.g., Collaboration Properties, Inc. v. Polycom, Inc.*,
25 224 F.R.D. 473, 474-75 (N.D. Cal. 2004) (each interrogatory which sought
26 information about all 26 accused products has 26 discrete subparts). To the extent the
27 number of interrogatories served by Oplus, including each of the discrete subparts
28 contained in these Interrogatories, exceed 25 as permitted by Federal Rule of Civil

1 Procedure 33(a)(1), such interrogatories should be stricken absent a court order
2 pursuant to Federal Rule of Civil Procedure 26(b)(2).

3 VIZIO further objects to these Interrogatories to the extent that they seek
4 information protected from disclosure by the attorney-client privilege, the work
5 product doctrine, or any other applicable privilege or doctrine.

6 VIZIO further objects to these Interrogatories as calling for confidential and
7 proprietary information. VIZIO further objects to these Interrogatories as overly
8 broad, unduly burdensome, and harassing as they are not limited in either time or
9 scope.

10 VIZIO further objects to these Interrogatories as improperly seeking to
11 circumvent both the timing and substance of the rules governing expert disclosures, as
12 well as the schedule in this case. *See, e.g.*, Order on Joint Stipulation re Scheduling
13 (Dkt. No. 86). To the extent these Interrogatories seek premature expert discovery
14 and purport to impose burdens on VIZIO beyond those required by the Federal Rules,
15 the Local Rules, and the agreement of the parties, they are improper.

16 Subject to and without waiver of the foregoing general and specific objections,
17 VIZIO responds as follows:

18 VIZIO has retained a technical expert who will provide a report at the time
19 specified in the Court's scheduling order. *See* Order on Joint Stipulation re
20 Scheduling (Dkt. No. 86).

21 At this time, VIZIO is unaware of any evidence showing that VIZIO infringes
22 any asserted claims of the '842 Patent. Oplus has also not provided any evidence that
23 anyone has used any accused VIZIO product to practice any asserted claim of the
24 '842 Patent. *See* September 18, 2012 letter to Oplus counsel, which is incorporated
25 by reference herein.

1 Dated: March 28, 2013

Respectfully submitted,

2 By: /s/ Charles C. Koole

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4 Cal. Bar No. 118215
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26 Attorneys for Defendant VIZIO, Inc.

Glaser Weil Fink Jacobs
Howard Avchen & Shapiro LLP

PROOF OF SERVICE

STATE OF CALIFORNIA, COUNTY OF LOS ANGELES

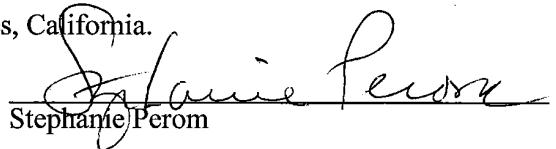
I am employed in the County of Los Angeles, State of California; I am over the age of 18 and not a party to the within action; my business address is 10250 Constellation Boulevard, 19th Floor, Los Angeles, California 90067.

On March 28, 2013, I served the foregoing document(s) described as **DEFENDANT VIZIO INC.'S OBJECTIONS AND RESPONSES TO PLAINTIFF OPLUS TECHNOLOGIES, LTD.'S AMENDED INTERROGATORIES (NOS. 1-20)** on the interested parties to this action by delivering a copy thereof in a sealed envelope addressed to each of said interested parties at the following address(es):

SEE ATTACHED LIST

- ☐ **(BY MAIL)** I am readily familiar with the business practice for collection and processing of correspondence for mailing with the United States Postal Service. This correspondence shall be deposited with the United States Postal Service this same day in the ordinary course of business at our Firm's office address in Los Angeles, California. Service made pursuant to this paragraph, upon motion of a party served, shall be presumed invalid if the postal cancellation date of postage meter date on the envelope is more than one day after the date of deposit for mailing contained in this affidavit.
- ☐ **(BY ELECTRONIC SERVICE)** by causing the foregoing document(s) to be electronically filed using the Court's Electronic Filing System which constitutes service of the filed document(s) on the individual(s) listed on the attached mailing list.
- ☒ **(BY E-MAIL SERVICE)** I caused such document to be delivered electronically via e-mail to the e-mail address of the addressee(s) set forth in the attached service list.
- ☐ **(BY OVERNIGHT DELIVERY)** I served the foregoing document by FedEx, an express service carrier which provides overnight delivery, as follows: I placed true copies of the foregoing document in sealed envelopes or packages designated by the express service carrier, addressed to each interested party as set forth above, with fees for overnight delivery paid or provided for.
- ☐ **(BY FACSIMILE)** I caused the above-referenced document to be transmitted to the interested parties via facsimile transmission to the fax number(s) as stated on the attached service list.
- ☐ **(BY PERSONAL SERVICE)** I caused such envelope to be delivered by hand to the offices of the above named addressee(s).
- ☒ **(Federal)** I declare that I am employed in the office of a member of the bar of this court at whose direction the service was made. I declare under penalty of perjury that the above is true and correct.

Executed on March 28, 2013, at Los Angeles, California.


Stephanie Perom

Glaser Weil Fink Jacobs
Howard Avchen & Shapiro LLP

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Glaser Weil Fink Jacobs
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IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION

IP INNOVATION LLC and TECHNOLOGY)	
LICENSING CORPORATION,)	
)	
Plaintiffs,	)	Civil Action No. 08 C 0393
)	
v.	)	Honorable Samuel Der-Yeghiayan
	)	Magistrate Judge Cox
VIZIO, INC. (f/k/a V, INC.),)	
)	
Defendant.)	

PLAINTIFFS' EXHIBIT LIST

Plaintiffs hereby submit their list of exhibits that may be used at trial. By agreement of the Parties, Plaintiffs reserve the right to modify this list to add or eliminate exhibits. This document does not list demonstrative exhibits, which will instead be exchanged or otherwise made available to the Defendant the evening before they are used at trial. Plaintiffs also reserve the right to use exhibits not included on this list, as may be necessary for rebuttal, without prior notice to the Defendant.

Plaintiffs' Ex. No.	Document Description	Bates No. / Dep. Ex. No. / Docket Index No.	Marked	Offered	Objection ¹	Admitted	Date	Witness
IPX 303	Specifications for VU37L FHD TV10A	VIZPROD027066 - VIZPROD027069						
IPX 304	Specifications for VU37L HDTV10A	VIZPROD027070 - VIZPROD027075						
IPX 305	Specifications for VW32L HDTV40A	VIZPROD027076 - VIZPROD027081						
IPX 306	Specifications for VW37L HDTV20A	VIZPROD027082 - VIZPROD027085						
IPX 307	Specifications for VW37L HDTV40A	VIZPROD027086 - VIZPROD027091						
IPX 308	Specifications for VW42L FHD TV10A	VIZPROD027092 - VIZPROD027095						
IPX 309	Specifications for VW46L FHD TV10A	VIZPROD027096 - VIZPROD027099						
IPX 310	Specifications for VW46L FHD TV20A	VIZPROD027100 - VIZPROD027105						
IPX 311	Specifications for VW46L FHD TV20A	VIZPROD027106 - VIZPROD027111						
IPX 312	Specifications for VW47L FHD TV10A	VIZPROD027112 - VIZPROD027115						
IPX 313	Specifications for VX20L HDTV20A	VIZPROD027116 - VIZPROD027119						
IPX 314	Specifications for VXW20L HDTV10A	VIZPROD027144 - VIZPROD027147						
IPX 315	2000 - Vizio L42HDTV10A and Vizio GV42L HDTV Service Manual	VIZPROD027148 - VIZPROD027254						
IPX 316	2000 - Vizio L42HDTV10A and Vizio GV42L HDTV Service Manual	VIZPROD027256 - VIZPROD027524						

1 UNITED STATES DISTRICT COURT
2 CENTRAL DISTRICT OF CALIFORNIA
3 WESTERN DIVISION
4
5 OPLUS TECHNOLOGIES, LTD.,)
6)
6 Plaintiff,)
7)
7 vs.) Case No. CV12-5707 MRP(E)
8)
8 SEARS HOLDINGS CORPORATION)
9 and VIZIO, INC.,)
9)
10 Defendants.)
10 _____)
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14

13 CONFIDENTIAL - ATTORNEYS' EYES ONLY
14
15 VIDEOTAPED 30(B)(6) DEPOSITION of VIZIO,
16 INC. (KENNETH ROY LOWE), taken on behalf of
17 Oplus Technologies, Ltd., at 18000 Von Karman
18 Avenue, Irvine, California, commencing at
19 9:32 a.m., Friday, May 10, 2013, before
20 Michelle Hutton, C.S.R. 7322.
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1 CONFIDENTIAL MATERIAL DELETED
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Kenneth Lowe May 10, 2013

CONFIDENTIAL MATERIAL DELETED

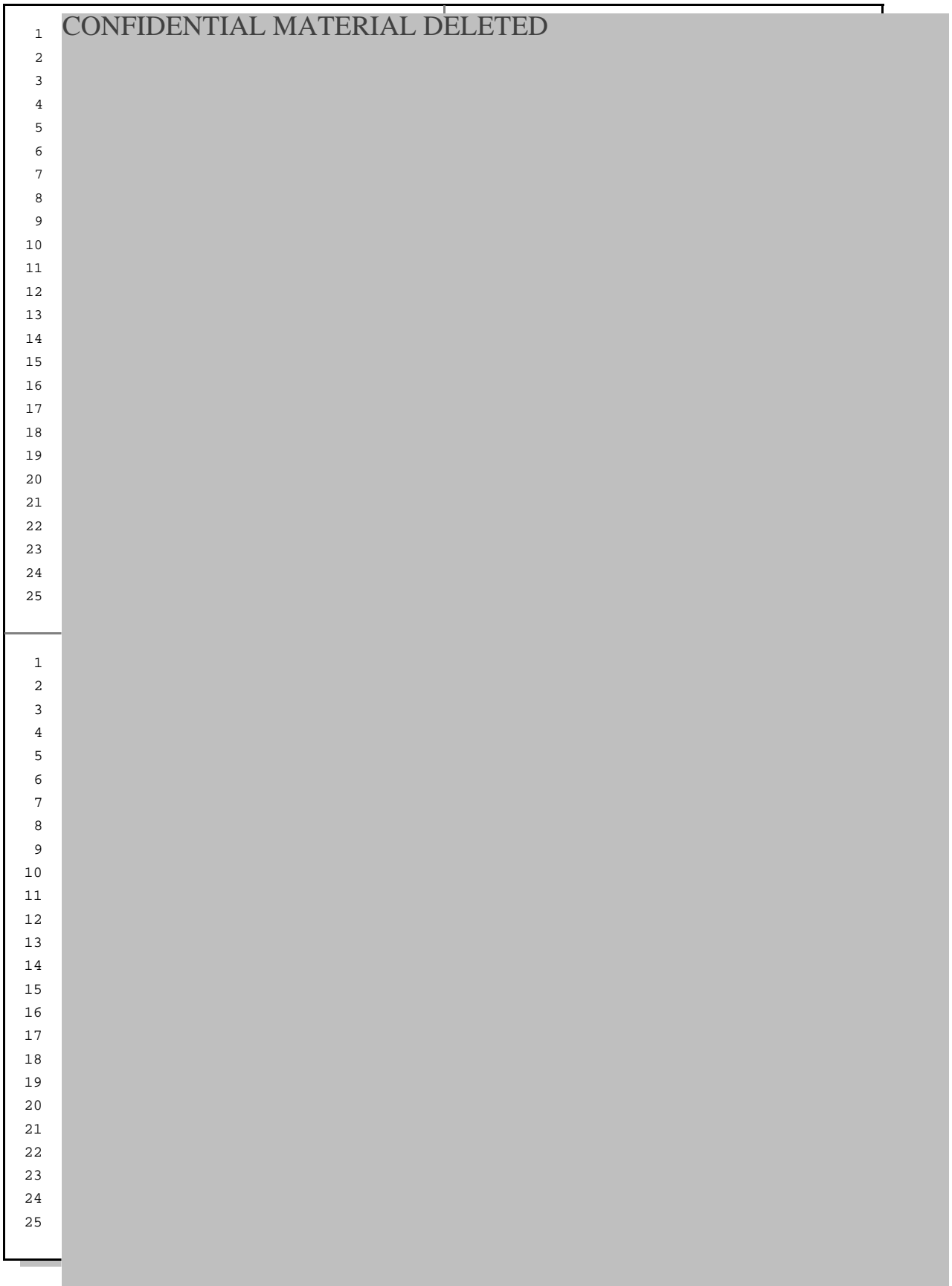
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800 Wilshire Blvd. Ste. 710
Los Angeles, California 90017
Telephone: (213) 892-1200
Facsimile: (213) 892-1208

Attorneys for Plaintiff
Oplus Technologies, Ltd.

IN THE UNITED STATES DISTRICT COURT
FOR THE CENTRAL DISTRICT OF CALIFORNIA
WESTERN DIVISION

OPLUS TECHNOLOGIES, LTD.,

Plaintiff,

v.

SEARS HOLDINGS CORPORATION
and VIZIO, INC.,

Defendants.

Case No. CV12-5707 MRP (Ex)

*Assigned to the Honorable Mariana R.
Pfaelzer*

**PLAINTIFF'S FIRST SET OF
REQUESTS FOR PRODUCTION
OF DOCUMENTS TO VIZIO, INC.**

JURY TRIAL DEMANDED

58. All documents sufficient to identify customers who have purchased the Relevant Products.

59. All documents supporting or refuting any of Defendant's Affirmative Defenses.

60. All communications with Faroudja Labs, Genesys Microchip or STMicroelectronics relating to noise reduction.

61. All communications with Faroudja Labs, Genesys Microchip or STMicroelectronics relating to DCDi.

62. All communications with Silicon Optix, IDT, Teranex, Jupiter Systems, or GEO Semiconductor relating to de-interlacing.

63. All communications with Silicon Optix, IDT, Teranex, Jupiter Systems, or GEO Semiconductor relating to HQV.

64. All communications with MediaTek relating to de-interlacing.

65. All documents sufficient to identify why Vizio chose to incorporate Faroudja DCDi, Silicon Optix HQV, or Mediatek technology in the Relevant Products.

66. All documents sufficient to describe the implementation of Faroudja DCDi, Silicon Optix HQV, or Mediatek technology in the Relevant Products.

Respectfully submitted,

/s/ Paul C. Gibbons
Sean M. Kneafsey(SBN 180863)
Shaun Swiger (SBN 232878)
KNEAFSEY & FRIEND LLP
800 Wilshire Blvd. Ste. 710
Los Angeles, California 90017
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-14-

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Product Overview

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SMART TV



VIZIO Internet Apps® (V.I.A.) is your passport to a world of entertainment, movies, TV shows and more. All on you schedule, directly to your HDTV. [Learn More](#)

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Integrated WiFi auto-detects your wireless network using its built-in 802.11n wireless connection. Setup is a breeze so your new TV is up and running quickly. [Learn More](#)

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1080p Full HD resolution delivers ultimate detail and lifelike colors for a crystal-clear picture. [Learn More](#)

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Compatible Model: E502AR
MPN: 48.74N02.011 12033-1 MT5395

Brand: Vizio
Compatible Brand: For Vizio

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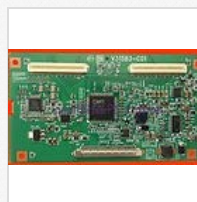
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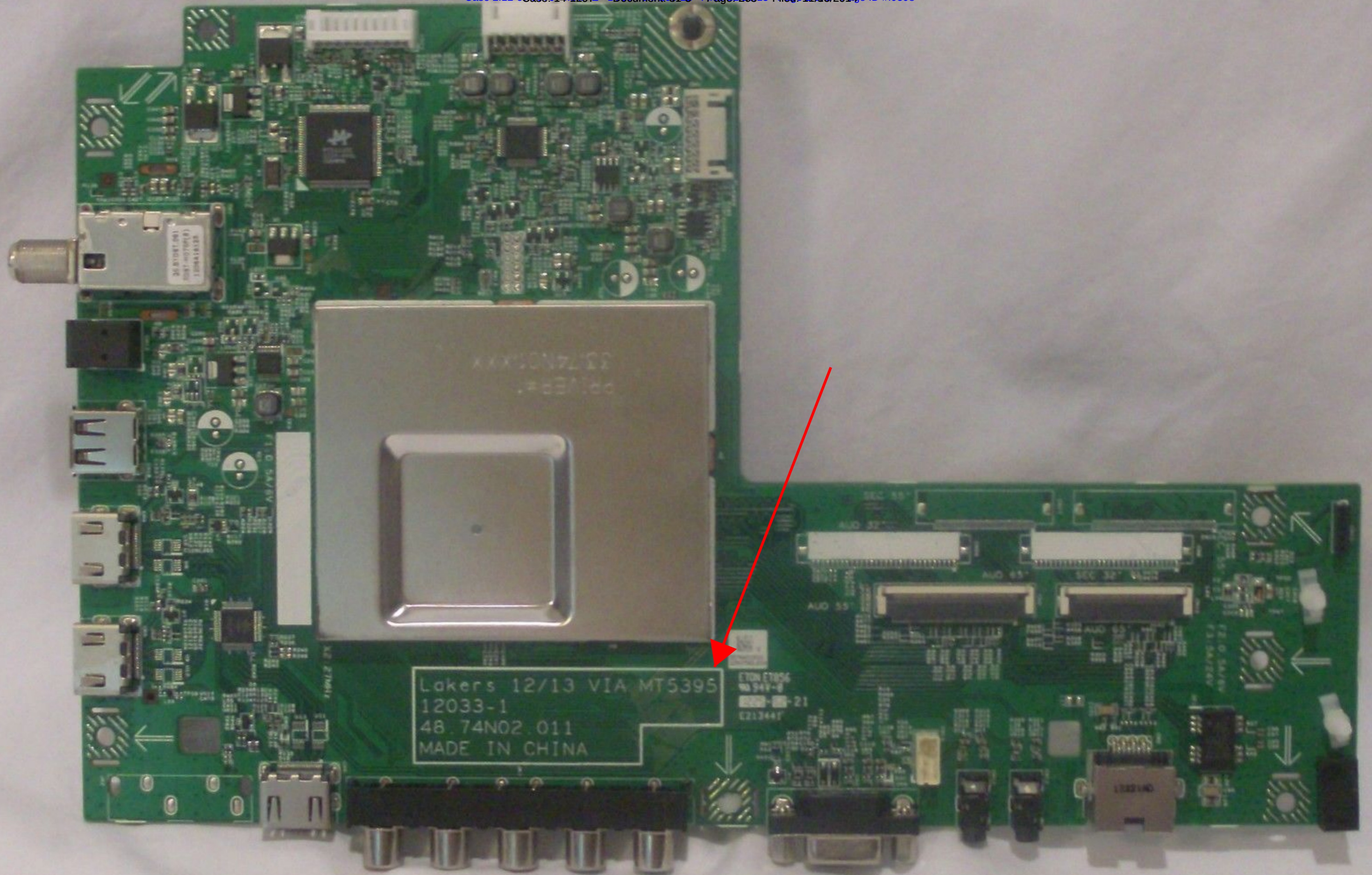
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MediaTek's Google TV 120Hz chipset detailed

This is a discussion on MediaTek's Google TV 120Hz chipset detailed within the **Off-Topic Discussion** forums, part of the Off-Topic Forum category; Scoop Du Jour The following is an excerpt of the following article: MediaTek's Google TV 120Hz chipset detailed by Chris Davies on Jan 6th 2012 ...



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Thread: MediaTek's Google TV 120Hz chipset detailed

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01-06-2012, 05:14 PM

#1

eferz ▾

Senior Member



Member #: 394

Join Date: Nov 2010

Posts: 3,301

Thanked: 451 times

MediaTek's Google TV 120Hz chipset detailed

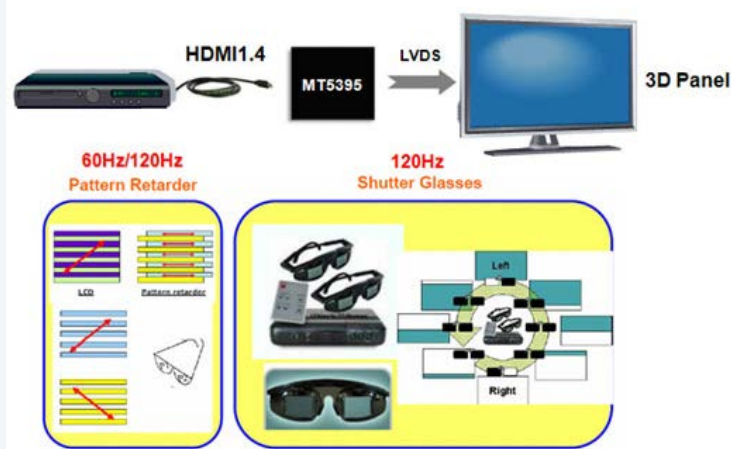
Scoop Du Jour

The following is an excerpt of the following article:

MediaTek's Google TV 120Hz chipset detailed

by Chris Davies on Jan 6th 2012

5395: True Full-HD 120Hz & connect/3D TV solution



MediaTek, one of Google's new chipset partners for the ARM-based next generation of Google TV, has detailed the SoC potentially powering your next Android-based smart TV. The MediaTek 120Hz Smart TV packs media decoding, wireless, 3D processing and more into a single chip, including WiFi synchronization of multiple sets with one or more WiFi-enabled base stations, for simultaneous broadcast between them all.

The company's MDDI deinterlace tech is also baked in, combining the MPEG decoder, format converter and video enhancement unit. It's capable of 120Hz pictures, as the name suggests, as well as crunching both 2D and 3D graphics.

The rest of the article can be read here: [MediaTek's Google TV 120Hz chipset detailed - SlashGear](#)

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01-06-2012 05:14 PM

ADS

Ads



01-06-2012, 05:26 PM

#2

CatfishRivers ◦

Senior Member



Member #: 1951

Join Date: Apr 2011

Posts: 7,720

Thanked: 652 times

Thanks for the post Eferz. I read that the new MediaTek chip is a **dual core 1.2GHz** chip. Seeing as that the Intel Atom 4150 chip in the Revue is also a 1.2GHz chip - how do you think the new MediaTek GTV chip compares to it? Is it much better? One thing I like is that it is supposed to have power management.

Still I was thinking that the Tegra3 **quad core chip** would of been a more powerful solution - although probably at a higher cost.



Reply With
Quote

01-06-2012, 05:30 PM

#3

eferz ◦

Senior Member



Member #: 394

Join Date: Nov 2010

Posts: 3,301

Thanked: 451 times

Scoup Du Jour

The following is the press release from MediaTek

MediaTek Releases World's First 120Hz SoC Solutions for High-end Smart TV

2012-01-05

Next Generation [Wi-Fi](#) Display Technology Brings the "Living Room" Revolution to a New Level

05 January, 2012 – MediaTek Inc., a leading fabless semiconductor company for wireless communications and digital multimedia solutions today announced the release of the world's first 120Hz Smart TV supported single chip solution model. In addition to providing an unparalleled 3D viewing experience, the chip is also an industry leader in support for Wi-Fi display technology, which allow Smart TVs to synchronize with Wi-Fi network hubs without the use of external modems or Internet connection, ensuring that high definition content can be easily shared on TV screens anytime or anywhere. MediaTek's groundbreaking solution is bringing the "living room" revolution to a new level, while creating a new generation of "smart homes."

According to the Topology Research Institute's most recent report, as more brands continue to release Smart TVs, worldwide shipments of Smart TVs in the next two years could double. In 2011 alone, 25.18 million Smart TVs were sold worldwide, accounting for 10.4% of overall TV sales. In 2012, that number is set to double to at least 52.85 million units. A yearly growth of 100% means that by the end of 2012, Smart TVs will account for 20% of overall TV sales. The report went on to say that as "smart" becomes the new catchword in electronics, the addition of 3D and LED innovative hardware features is set to bring about more explosive growth to the already red hot **Smart TV** market.

MediaTek's new Smart TV single chip solution offers a number of highly integrated advanced applications. In addition to support for numerous high

MediaTek's patented MDDITM deinterlace solution, greatly enhancing the clarity of moving images and allowing support for 120 Hz MEMC (Motion Estimation, Motion Compensation) and 3D visuals, thus making images even more lifelike and giving consumers a smoother and more vivid viewing experience. As the first to support the next generation Wi-Fi Alliance Standard, MediaTek's Wi-Fi display technology allows Smart TVs to be synchronized with one or more Wi-Fi stations, thus allowing simultaneous broadcast of content between the devices. Enjoying a new smart digital home experience, consumers can now easily share high definition video content with both friends and family.

In addition, MediaTek provides support for digital TV's worldwide common platforms, as well as the customization of solutions, enabling customers to instead focus their resources on product differentiation and various application developments, thereby shortening the time to market for products. Mr. Joe Chen, General Manager of Digital TV BU at MediaTek Inc., said, "Compared with traditional TVs, Smart TVs offer Internet access and Internet service platforms which give consumers a more superior all around visual experience. Following the introduction of Smart TV technology, the traditional TV has been transformed into a digital home entertainment center; with interactive features available, as well as having built in a variety of different applications, this new generation of Smart TVs completely redefines the traditional role of the "living room TV", and sets a new milestone for TV technology. By offering a Smart TV single chip solution that features high-performance, high integration and customizable features, MediaTek continues to help customers worldwide achieve global brand value.

The press release can be referenced here: [MediaTek - MediaTek Releases World's First 120Hz SoC Solutions for High-end Smart TV](#)

Google TV setup #1: Tivo Premiere > Logitech Revue > HD Fury 3 > Slingbox Pro-HD
Google TV setup #2: Roku 2 XS > 24" Sony Internet TV NSX-24GT1



Reply With
Quote

01-06-2012, 05:54 PM

#4

eferz

Senior Member



Member #: 394

Join Date: Nov 2010

Posts: 3,301

Thanked: 451 times

Originally Posted by CatfishRivers

Thanks for the post Eferz. I read that the new MediaTek chip is a dual core 1.2GHz chip.

Are you sure that's the MediaTek chip and not the Marvell Armada 1500 (88DE3100)? I've read the specs on the Armada having a 1.2Ghz dual core ARM v6/7 processor. But, I'm still looking for exact specs for the MediaTek SoC.

Originally Posted by CatfishRivers

Seeing as that the Intel Atom 4150 chip in the Revue is also a 1.2GHz chip - how do you think the new MediaTek GTV chip compares to it? Is it much better? One thing I like is that it is supposed to have power management.

It is impossible trying to compare two CPU different architectures on a single parameter such as speed of the processor. We need more information about the actual specs. Probably the most important is hardware acceleration. When we deal with these low performance processors, hardware acceleration is key to offload CPU resources.

Originally Posted by CatfishRivers

Still I was thinking that the Tegra3 quad core chip would of been a more powerful solution - although probably at a higher cost.

That's for sure.

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01-06-2012, 06:19 PM

#5

Case 2:12-cv-01287 Document 37 Filed 11/06/23 Page 14 of 23

ChrisG8

Senior Member

Member #: 2814

Join Date: Aug 2011

Posts: 2,644

Thanked: 338 times

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Home Theater - TCD652160 TiVoHD OTA Unsubscribed, Oppo BDP-93, PS3, LG BH200, Sony NSZ-GS7 Google TV

01-06-2012, 06:22 PM

CatfishRivers

Senior Member

Member #: 1951

Join Date: Apr 2011

Posts: 7,720

Thanked: 652 times

You're right Eferz.. I was thinking of the Marvell Armada 1500 chip and I got it mixed up with the MediaTek chip.
My bad.....

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#6

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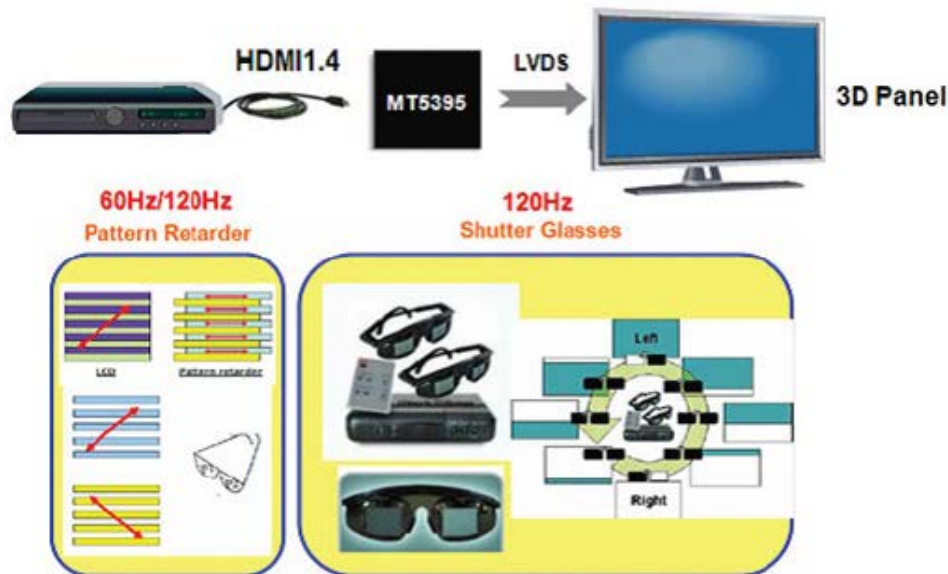


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5395: True Full-HD 120Hz & connect/3D TV solution



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The company's MDDi deinterlace tech is also baked in, combining the MPEG decoder, format converter and video enhancement unit. It's capable of 120Hz pictures, as the name suggests, as well as crunching both 2D and 3D graphics.

The rest of the article can be read here: [MediaTek's Google TV 120Hz chipset detailed - SlashGear](#)



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MediaTek's Google TV 120Hz chipset detailed

Chris Davies, Jan 6th 2012 Discuss [1]

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MediaTek, one of [Google's new chipset partners](#) for the ARM-based next generation of [Google TV](#), has detailed the SoC potentially powering your next Android-based smart TV. The MediaTek 120Hz Smart TV packs media decoding, wireless, 3D processing and more into a single chip, including WiFi synchronization of multiple sets with one or more WiFi-enabled base stations, for simultaneous broadcast between them all.



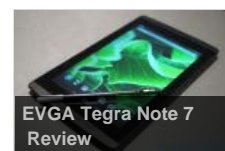
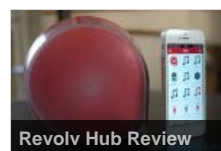
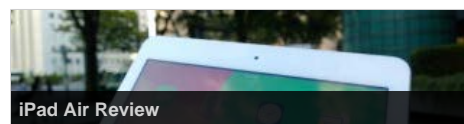
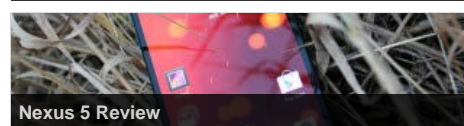
Google TV™

The company's MDDi deinterlace tech is also baked in, combining the MPEG decoder, format converter and video enhancement unit. It's capable of 120Hz pictures, as the name suggests, as well as crunching both 2D and 3D graphics.

Interestingly, MediaTek isn't just focusing on Google TV with the new chip; instead, it's positioning it as a platform agnostic [solution](#), ideal for those companies who might want to follow their own smart TV



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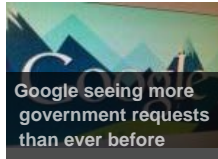
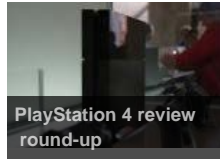
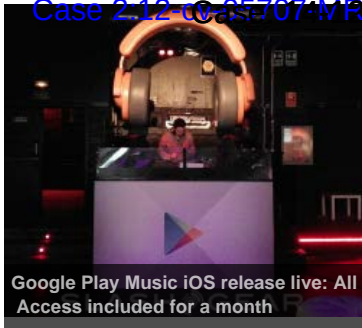
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Tags:

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Calvin and Hobbes ebooks appear: iPad, Kindle, Nook readied · 38 minutes ago

 **Mike** Would use be able to the the Tegra...

EVGA Tegra Note 7 Review · 45 minutes ago

 **deecce** Oh, you can ignore the increase in...

Xbox One vs Xbox 360: What's Changed? · 53 minutes ago



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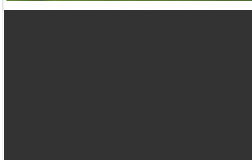
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Company Data

Date of Registration 0860528
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Tel 03-5670766
Fax



Company Profile

MediaTek Inc. is a leading fabless semiconductor company for wireless communications and digital multimedia solutions. The company is a market leader and pioneer in cutting-edge SOC system solutions for wireless communications, high-definition TV, optical storage, DVD and

Blu-ray products. Founded in 1997 and listed on Taiwan Stock Exchange under the code "2454", MediaTek is headquartered in Taiwan and has sales and research subsidiaries in Mainland China, Singapore, India, U.S., Japan, Korea, Denmark, England and Dubai.

2011

- Awarded 5th National Telecom Award 2011- "Best Technology for Mobile Phone" by "CMAI Association of India"
- The winner of "The FT ArcelorMittal Boldness In Business Award" for "the 2010 Emerging Market"
- Published 5 papers in ISSCC

2010

- Ranked no.6 of 2010 Asia's 200 most-admired companies by "The Wall Street Journal"
- Awarded Top 12 of Global Top 100 High-Tech Companies by "Bloomberg Business Week"
- Published 2 papers in ISSCC

2009

- 2009 SIPA Innovative Product Award, High Sensitivity GPS SOC
- The winner of "2009 APAC Leadership Council Award " selected by GSA (Global Semiconductor Alliance)
- Published 4 papers in ISSCC

2008

- 2008 SIPA Innovative Product Award, Full HD ATSC iDTV SOC
- Published 2 papers in ISSCC

2007

- Won "Distinguished Innovation Accomplishment Award" at the 15th ITA Award by Ministry of Economic Affairs
- Published paper in ISSCC
- Published paper in IEEE IRPS (International Reliability Physics Symposium)
- The winner of "Forbes FAB 50"

Innovation Produc



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The MediaTek MT5395 family is a backend decoder and A/V controller and offers high integration for advanced applications. It combines a transport de-multiplexer, a high definition video decoder, an AC3 audio decoder, a four-link LVDS transmitter, a mini-LVDS transmitter, a V-by-One transmitter, and an NTSC/PAL/SECAM TV decoder with a 3D comb filter (NTSC/PAL). The MT5395 enables consumer electronics manufactures to build high quality, low cost and feature-rich DTV.

World-Leading Audio/Video Technology: The MT5395 supports Full-HD MPEG1/2/4/DivX/VC1/ RM/H.264/AVS video decoder standards, and JPEG. The MT5395 also supports MediaTek MDDiTM de-interlace solution can reach very smooth picture quality for motions. A 3D comb filter added to the TV decoder recovers great details for still pictures. The special color processing technology provides natural, deep colors and true studio quality video. Also, the MT5395 family has built-in high resolution and high-quality audio codec.

Rich Features for High Value Products: The MT5395 family enables true single-chip experience. It integrates high-quality HDMI1.4, high speed VGA ADC, four-link LVDS, mini-LVDS, V-by-One, USB2.0 receiver, Ethernet MAC+PHY, TCON and panel overdrive technology.

All New Full-HD 120Hz and 3D Experience: The MT5395 family enables customers a true Full-HD 120Hz experience. It integrates high-quality Full-HD ME/MC technology and supports both SG/PR 3D panels.

✪R&D Engineers

More than 250 MediaTek engineers including the hardware and software engineers of Digital TV (DTV) Business Unit, analog circuit designers, chip layout engineers, physical design engineers, silicon IP developers, and product manufacturing, testing and quality assurance were involved in developing the MT5395, High-Integrated 3D/Internet TV SOC.


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VIZIO VP of Engineering Marcus Apitz Talks Tech

Q: What is your specific role at VIZIO?

A: My team is responsible for putting in place the hardware and software technologies that enable our product roadmap. That means developing, reviewing and testing technical designs with teams located in the U.S. and in lots of other locations overseas.

Q: What would be the most successful outcome of your work, and what impact would it have on how we live?

A: I want to fundamentally change the way we gain access to information and entertainment and the role that consumer electronics play in making that happen seamlessly. With ever more computational power and access to connectivity between products, the way we communicate, work, and play and how we interact with and between devices will fundamentally change rapidly.

Q: What about this project is important to you personally? What is the very best part of your job – when do you feel the most satisfaction?

A: Change only happens when you are willing to challenge preconceived notions. I live for those moments when I'm part of a small group of dedicated, smart, individuals who collaborate and riff off one another. The best moments are when I can put forth a new solution to a hard problem, or even better, when someone else comes up with an unexpected solution that challenges or extends an idea I had

to read more from this interview please [click here](#) and let us know what you think in the comments below.



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HDTVs / HDTV Reviews / VIZIO SV471XVT LCD HDTV Review

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VIZIO SV471XVT Review

47" 1080p LCD HDTV, \$1499

Dick De Jong

August 13, 2009

[HDTV Solutions](#)

Introduction

Last November, I reviewed VIZIO's top of the line model the 42" [SV420XVT](#). They have recently released their next step up the Extreme VIZIO Technology ladder, the SV421XVT and its larger brother, the 47" SV471XVT.



Last year's release, the SV420XVT was a 120Hz LCD. This new SV471XVT boasts a 240Hz SPS display. I don't want to be too technical right now. (I go into more detail later.) Basically, the SV471XVT combines the 120Hz technology with a scanning backlight, which creates a 240Hz effect.

Video theorists may argue about if this method can truly be labeled 240Hz. What I can say is that some of the telltale artifacts that I was noticing during playback of certain movie scenes on the earlier SV420XVT were not visible on the SV471XVT.

If you read my review of the SV420XVT, you will see that those unsightly problems only popped up very rarely. And for the other 99% of the movie, you probably wouldn't be able to discern a difference between the 120Hz and the 240Hz SPS display. But in that one percent, the SV471XVT definitely looked better.

The SV471XVT is truly new and improved.

(Editor's Note: As mentioned, VIZIO makes a 42 and a 47" version of this XVT 1080p LCD line. They have similar specifications and this review of the SV471XVT can be applied to the SV421XVT also. These two models are currently available at Costco and Dell. In addition, the SV421XVT can be found at Sam's Club.)

[Out of the Box](#) | [Power Consumption](#) | [Setup](#) | [Performance](#) | [Conclusion](#) | [Specifications](#)

Our Star Ratings

Performance: 4.5 ★★★★★

I like the consistently high picture quality of the SV471XVT, though the native black levels could be deeper. The sharp, 3D-like imagery produced by the 240 SPS technology should impress friends and family. If only the audio fidelity from the pair of integrated speakers matched the video.

Features: 4.5 ★★★★★

VIZIO has been providing ample amounts of connections for a long time. Though previous models have been missing a USB port for uploading photos, music and videos. The SV471XVT not only adds this port but also pairs it with a robust interface. The TV also provides a good PIP/POP feature. This model does not include any Internet connectivity.

Ease of Use: 4.5 ★★★★★

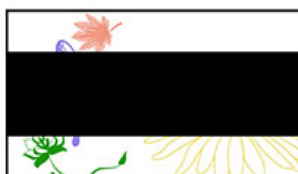
With multiple picture modes, you should be able to find one that strikes your fancy and make minor adjustments from there. With consistent results from the Smooth Motion and Real Cinema features, you won't need to spend time



Same frame presented twice



Outer Backlights Off



Inner Backlights Off

While some manufacturers have decided to create the 240 frames solely with MEMC, VIZIO among others have opted for this scanning backlight method because they believe that it causes fewer artifacts, less smearing and requires less power.

I think for many of us, the technology is racing beyond what our human eye can perceive. And right now, you will pay a premium for any of the 240Hz TVs. Though I assume that gap will narrow soon. Of course, by then, we will probably see 480Hz models hit the market.

What I was able to clearly see was the improvement in the halo artifacting that I noticed with the SV420XVT. For example, in one scene in the *Pride and Prejudice* HD DVD, Miss Elizabeth quickly walks away from Mr. Darcy and descends a staircase with leafy bushes in the background.

With the SV420XVT, she stays sharp, but a halo or bubble forms around Elizabeth. With the SV471XVT, there is no halo - no artifacts. I've been informed by a VIZIO engineer that they have improved the MEMC algorithms and I say "Bravo."



Not only do the new calculations raise the picture quality, it also takes the guesswork out of setting the Smooth Motion and Real Cinema controls. Basically, you should be fine with Smooth Motion at Medium and Real Cinema at Smooth.

The main reason to fiddle with them at all is if you feel that the sharp, video-like appearance is disconcerting when watching movies. If you are a traditionalist, try turning off Real Cinema and Smooth Motion.

Performance

When manufacturers throw new technology at you, it becomes easy to be distracted from what's really important, performance. And the SV471XVT has raised its game a notch or two over the earlier 420. Probably most noticeably in consistency.

When you are pushing the edges trying to squeeze out performance, you run the risk of inducing unwanted artifacts. The SV471XVT has overcome that problem.



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HDTVS

LCD HDTV Motion Features: How Do They Work?

By [Yardena Arar](#), PCWorld

Nov 23, 2010 6:15 PM



If you've been paying attention to [LCD TV marketing pitches](#) over the last few years, you may have noticed vendors touting faster refresh rates (120Hz, 240Hz, and even 480Hz) and various proprietary technologies that promise smooth motion. But what exactly is the problem here, and do any of the purported remedies help?

Several issues are involved. The first has to do with response time. LCDs depend on pixels that change their state to let varying amounts of light to pass

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display twice as many images per second, but the content remains unchanged--and showing the same 60 images



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twice doesn't address the underlying problem with fast motion. That's why most LCD-TV vendors have introduced technologies that generate new frames of content based on interpolation of the source material. The programs use mathematical algorithms to analyze adjacent frames (or a group of adjacent frames) and figure out where moving objects might logically be in the fraction of a second that the source video doesn't contain.



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Every vendor has its own way of making these calculations, and they appear under different names in marketing materials. Vizio, for example, calls its motion-smoothing technology MEMC (short for Motion Estimation, Motion Compensation)--but the ads simply refer to it as Smooth Motion. LG calls its motion interpolation technology TruMotion, Samsung has Auto Motion Plus, and so on.

How effective are these technologies? "Nobody's got it perfectly right yet," says Vizio's Lowe. That's because it's difficult to develop a mathematical algorithm that will work for all types of scenes and content.

Movies Muddle the Picture

Another cause of video artifacts is specific to movies--a problem that has been around since the days of analog CRT sets--and that is the mismatch between movie frame rates and television frame rates.

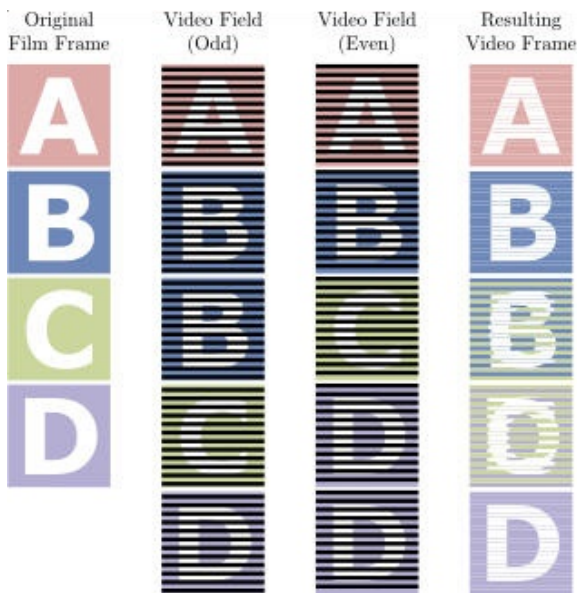
The NTSC sets used in the United States before the digital conversion had 525 lines of horizontal data and a refresh rate of 60Hz, but they were interlaced displays, meaning that each field consisted of every other line in the image: Odd numbered lines were drawn in one pass, and even number lines in the next. As a result, these sets effectively showed a complete

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Movies, however, are shot at 24 frames per second.

So in order to transfer film to video for TV (a process called [telecine](#)), Hollywood had to come up with a way to add 6 frames a second. The movie industry settled on a technology known as 3-2 pulldown, which adds one frame to every four by painting half of every other frame twice.



It works like this: If you have four frames of film (A, B, C, D), your television would normally draw each in two passes, starting with the odd numbered lines of A followed by the even numbered lines of A and so on.

With telecine, the two A frames (odd and even) are followed by the two B frames, after which the odd-numbered B frame lines are repeated followed by the even-numbered C frame lines.

After that, the odd-numbered C frame lines are followed by the even numbered D-frame lines, and then the odd and even (again) D frame lines. The result? 10 fields or 5 frames, two of which are hybrids generated from two of the original four frames.

[Telecine generally works well, but it can introduce artifacts called judder, a sort of jumpy look when the](#)

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Attorneys for Plaintiff

Oplus Technologies, Ltd.

IN THE UNITED STATES DISTRICT COURT
FOR THE CENTRAL DISTRICT OF CALIFORNIA
WESTERN DIVISION

OPLUS TECHNOLOGIES, LTD.,

Plaintiff,

v.

SEARS HOLDINGS CORPORATION
and VIZIO, INC.,

Defendants.

Case No. CV12-5707 MRP (E)

*Assigned to the Honorable Mariana R.
Pfazelzer*

**EXPERT REPORT AND
DECLARATION OF D. MICHAEL
HOLMES**

1 **I. INTRODUCTION**

2 1. My name is D. Michael Holmes. I am currently employed as the
3 President and Owner of Holmes Technologies LLC, which performs technical
4 consulting, among other functions. I have been hired by the Plaintiff's lawyers in
5 this case as a technical consultant and expert regarding U.S. Patent Nos. 7,271,840
6 (the "'840 patent") and 6,239,842 (the "'842 patent") as used by certain Vizio
7 products.

8 2. A brief summary of my background and experience is provided in my
9 Curriculum Vitae, including a list of all publications which I have authored in the
10 past 10 years and a complete listing of the trials and depositions in which I have
11 testified in the last four years is attached as Exhibit A. I am being compensated at a
12 rate of \$375 per hour in this matter.

13 3. I currently have formed opinions in my capacity as a technical
14 consultant and expert that the '840 and '842 patents are in fact infringed by various
15 Vizio products.

16 4. The materials I considered in forming my opinions are those
17 documents referenced throughout the body of this report as well as those
18 referenced in the claim charts attached as Exhibits to this report. I have also
19 examined and performed testing on the following models of VIZIO televisions:
20 GV46L HDTV, L37 HDTV, and the P42HDTV10A.

21 **The Vizio televisions and displays that use the Silicon Optix Reon chip**

- 22 a. These products infringe claims 7-9 and 14-15 of the '842
23 patent through the use of "Hollywood Quality Video"

(HQV) video enhancement algorithms, particularly through the use of pixel-based motion-adaptive de-interlacing, and the use of a multi-directional diagonal filter (MDDF).

The Vizio televisions and displays that use the Genesis Microsystems video processor chips Genesis Cortex (FLI8532), Genesis Hudson, and Genesis Cortex Advanced (FLI8668)

b. These products infringe claims 56-59 and 62 of the '840 patent through the use of "Directional Correlation De-interlacing" (DCDi) video enhancement processes.

The Vizio televisions and displays that use the MediaTek families of video processor chips including the MT82xx family (including the MT8202), the MT5351, the MT537x family, the MT538x family, and the MT539x family

c. These products infringe claims 7-9 and 14-15 of the '842 patent the use of motion-adaptive de-interlacing (MDDi) and claims 56-59 and 62 of the '840 patent through the use of MDDi with 3:2 Pull Down Detection.

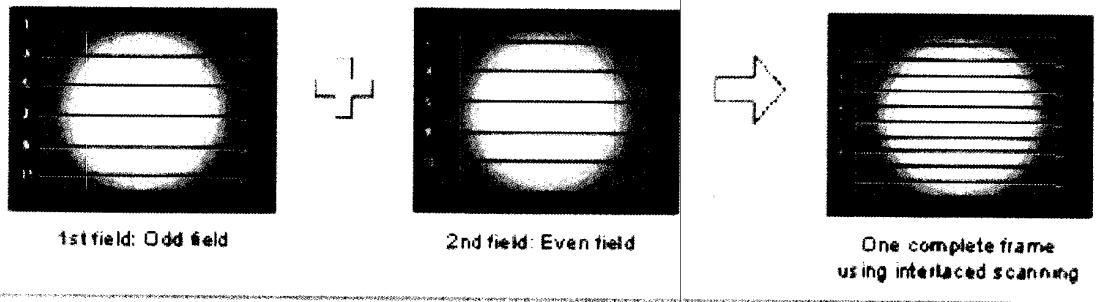
5. What follows is a summary of the opinions that I have formed to date, based upon the documents that I have reviewed. More detailed analysis of the design of the Vizio televisions with the HQV, DCDi, and MDDi chips can be found in the claim charts attached as Exhibits B, C, D, and E, which compare the accused Vizio products to the asserted claims. As of my writing this expert report, I am unaware of any technical documents produced by Vizio or any other third party. When such documents are made available to me, I expect I will supplement any report to reflect this additional information.

II. THE '840 AND 842 PATENTS

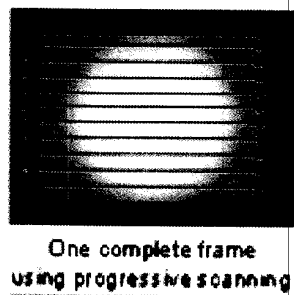
A. Background of the Technology

1. De-interlacing

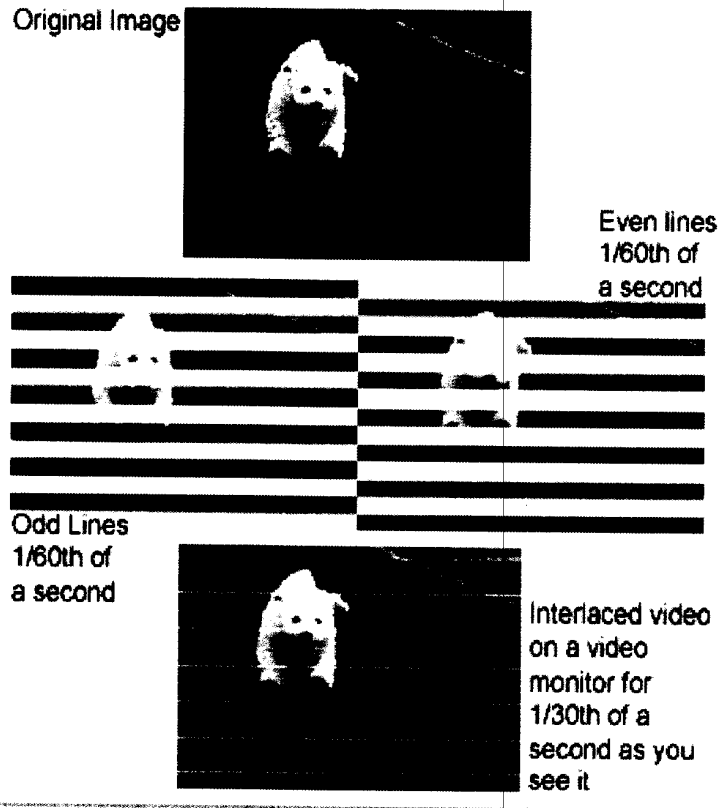
6. Images are typically scanned for viewing on a television or other display in one of two ways, either “progressive” or “interlaced,” i.e.:



Or:



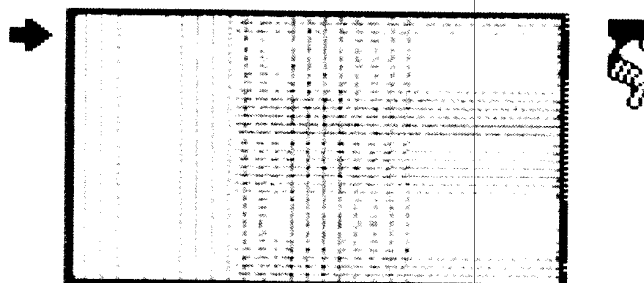
7. Interlaced signals are typically divided into two fields which make up a complete picture, with one field comprising the “odd” numbered lines, and the other field involving the “even” numbered lines, e.g.:



8. The evolution of HDTV screens, many digital broadcast standards, as well as Blu-ray discs and some downloadable videos from the Internet, has resulted in a shift toward “progressive” frames instead of “interlaced.” In fact, both plasma and LCD panels require a progressive video signal. Thus, any form of interlaced signal must be converted before it can be sent to the display panel. In a progressive video frame, the raster scan fills in all the lines of the image in order, not skipping over the even or odd rows, and then repeats the entire scan in the next frame. A “1080p” display, for example, displays a new 1920 by 1080 pixel frame 24 to 60 times a second. That is, a frame or complete picture for that screen includes 1920 pixels in width, and 1080 vertical rows of pixels. A “720p” display, by comparison, displays a new 1280 by 720 frame at 24 to 60 frames per second:

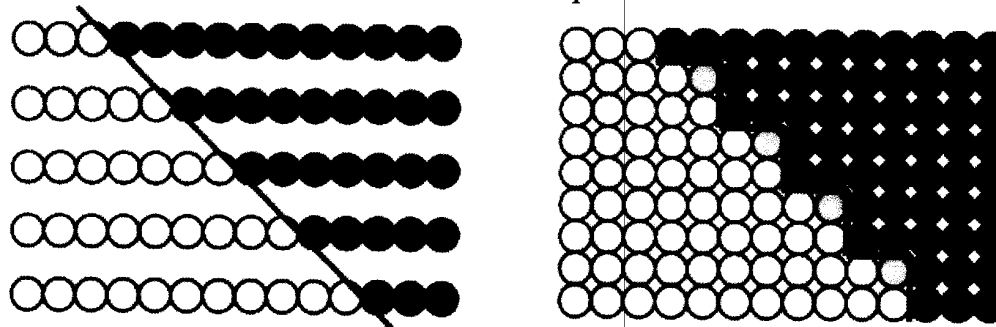
Resolution

Horizontal **Vertical**
Vertical Lines **Horizontal Lines**
Screen Width **Top to Bottom**

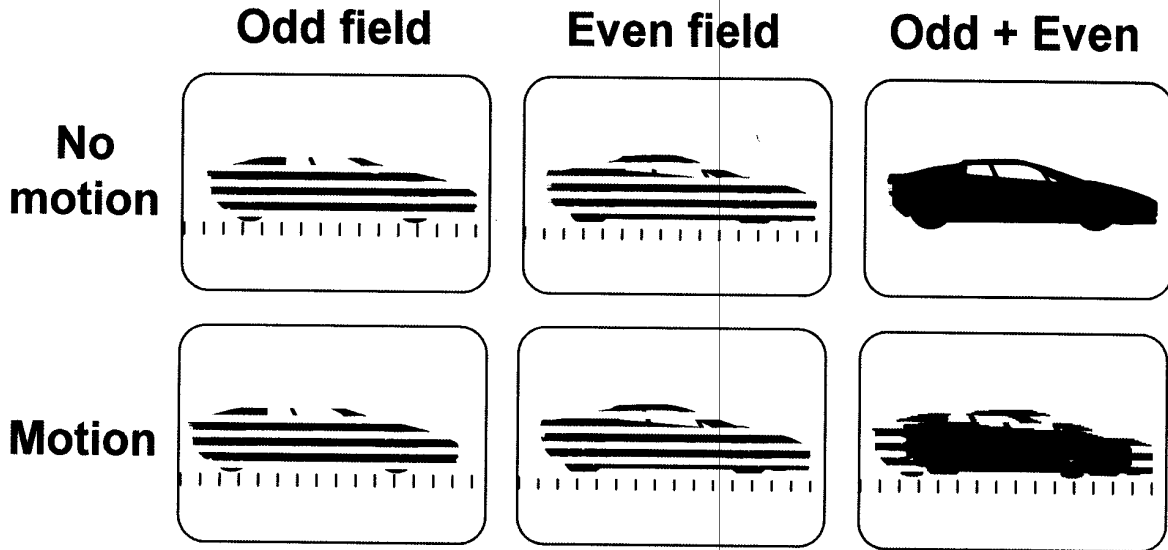


Vertical Set by Standard:
(480 .. 720 .. 1080)
Horizontal Variable

9. De-interlacing involves the process of converting an interlaced format video signal into a progressive scan video signal. One problem, however, is in accounting for motion in the image. That is, one cannot simply always delay a field for insertion and combination with its complimentary field, e.g., simply always doubling the lines in a spatial field will cause errors (“jaggies”) or a staircase in the edges of moving objects, as shown in the example below:

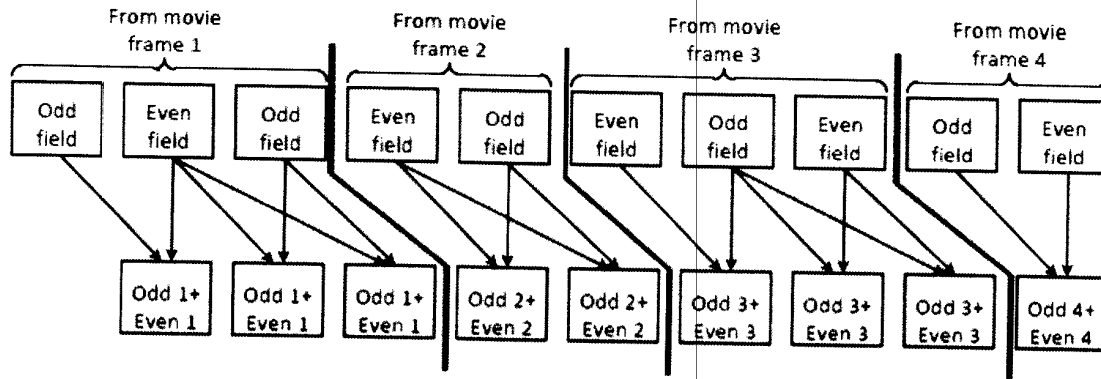


10. By contrast, simply always combining odd and even lines causes “feathering” artifacts due to time differences between odd and even scan lines, as shown in the example image below:



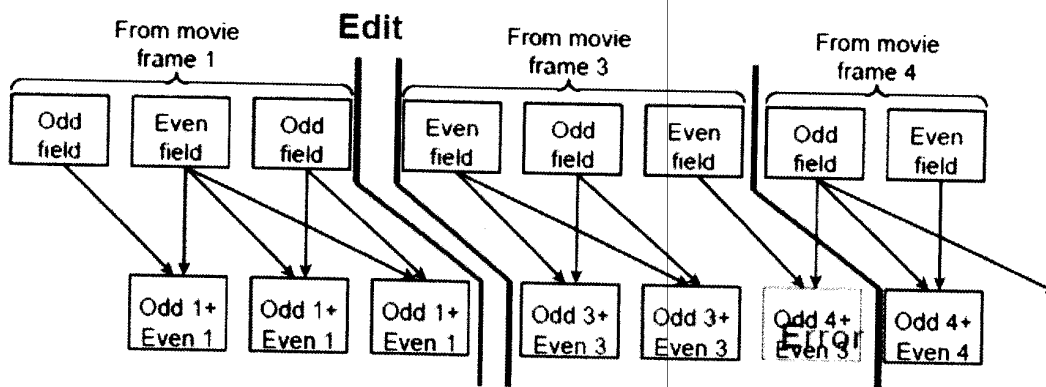
11. A further problem arises in terms of the variations of the sources of the images. Put another way, not every video source will be shot in the same format (whether interlaced or progressive) as the native resolution of the television, and many sources (e.g., movies) were shot originally for big screen film. As a result, such sources may not even have the same frame rate (i.e., the same number of pictures per second) as that used in television displays.

12. To convert such sources for television display, a film-to-video process is used to convert the film source to a desired interlaced video format. Part of this process includes converting the number of frames per second from the film standard (i.e., 24 frames per second) into the NTSC standard. This process is shown by example below:



Specifically, one movie frame is mapped into 3 video fields, the next frame into 2 fields, then the next frame into 3 fields, then 2 fields, etc.; this is referred to as “3:2 Pull Down.”

13. In practice, no editing process is perfect resulting in a need to detect and compensate for bad editing in the conversion from film to video. As shown in the example below, the editing process might have used the incorrect cadence or sequencing for a given set of images in the conversion process:



14. With these problems as context, the solutions provided by the ‘842 and ‘840 patents may be better understood.

1 **2. The ‘842 Patent**

2 15. The ‘842 patent is directed to de-interlacing. In the context of a video
3 system, a de-interlacer may be involved in the editing process prior to broadcast or
4 distribution (the so-called “front end”) or as in the present case, de-interlacing may
5 be integral to the display device (or “back end”) such as a television.

6 16. As set forth in its claims, the ‘842 patent addresses feathering
7 artifacts, jaggies and other de-interlacing errors as summarized above by a method
8 of de-interlacing interlaced video signals using a mixed mode spatial and temporal
9 approximation techniques. (‘842 patent 3:44-46). Specifically, the ‘842 patent
10 employs logical operations from a variety of techniques including the use of
11 averages of known values of spatial pixels, averages of known values of temporal
12 pixels, and other processes as defined in the claims. These techniques enable a
13 better assignment for filling in “missing” or virtual pixel values in the process of
14 generating a progressive image for display.

15 **3. The ‘840 Patent**

16 17. The ‘840 Patent is directed to entropy processing. (‘840 Patent, 1:15-
17 18.) Entropy is defined in the ‘840 patent as a degree or extent of randomness or
18 disorder. In application, a typical method involves processing the kinds of entropy
19 resulting from editing errors, synchronization errors (such as the cadence errors
20 discussed above) and the like.

21 18. The ‘840 Patent describes synchronization errors interjected into the
22 video signals during the front end editing process. More specifically, in order to
23 output an interlaced signal, the front end processing can interject errors into the
24

1 front end's output interlaced video signal, such as in the film conversion process
2 referenced above. The back end stage can correct the editing errors in the video
3 signal when preparing the data for display.

4 19. The '840 Patent discloses a technique for error correction using
5 entropy processing. This entropy process is used to identify the origin of the input
6 video signals and to correct these editing errors. ('840 Patent, 4:56-60). In
7 particular, since television stations are increasingly broadcasting various mixes of
8 video image signals acquired from a variety of video camera sources (e.g.,
9 interlaced video, non-interlaced or progressive video, non-interlaced Hollywood
10 movie film, and non-interlaced computer graphics), the '840 patent meets a need
11 for the real time identification of the original mode or type of camera source of a
12 digital video image signal, in order to better identify and account for editing errors
13 (such as cadence errors), thus better converting the broadcast digital video image
14 signals into the display format of the television or similar display device ('840
15 Patent, 4:33-52).

16 20. With this background in mind, I have analyzed the physical products
17 and/or materials (e.g., service manuals) describing various Vizio products as they
18 relate to the patents in suit.

19 **B. Infringement by Vizio Products Using HQV Enabled Chips**

20 21. It is my opinion that certain Vizio televisions use chips from Silicon
21 Optix (now Qualcomm) to handle video processing and enhancement as part of
22 their routine functions. Based upon publicly available information that I have
23 reviewed, it is my opinion that such chips use the HQV ("Hollywood Quality
24

1 Video”) technology. An example of such chips and technology as used in Vizio’s
2 televisions may be found in Vizio’s VP505XVT and VP504F televisions (see, e.g.,
3 <http://store.vizio.com/documents/downloads/hdtv/VP505XVT/198Manual.pdf> at p.
4 68, referring to “HQV video quality”; see also
5 http://www.noydcom.com/press_release/vizio/XVT/VIZIO_XVT_PR_FNL.pdf).
6 Those sets use Silicon Optix’s Reon VX 200 (see, e.g.,
7 <http://www.allquests.com/question/1635537-3/Vizios-New-2008-Lineup.html>),
8 and those chips employ HQV, which include (per the Reon data sheet, available at
9 siliconoptixlive.dimentians.com/.../dspDocumentDownload.cfm?PCVID...) a
10 motion adaptive de-interlacer including multi-directional diagonal filter:
11
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24

1 Rather than discarding half the resolution of
2 high-definition (HD) images, as today's image
3 processors typically do, HQV technology uses the
4 full four-field processing window for HD video
deinterlacing and cadence detection, thus preserving the
rich details in HD imagery.

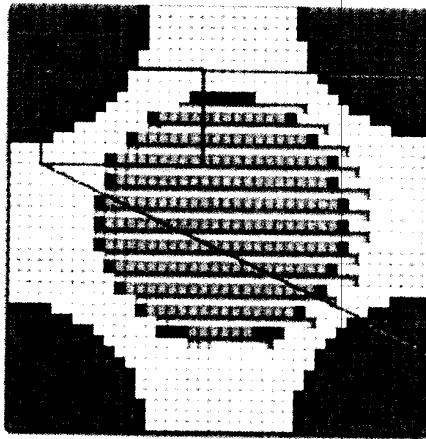
5
6 A true 10-bit diagonal interpolator that removes
7 any "jaggies" and/or stair-stepping artifacts from
8 de-interlaced video sources, without blurring the
image.

9
10 A fully automatic per-pixel adaptive software
11 algorithm that adds a fourth dimension of
12 pixel-by-pixel noise and motion measurement,
detecting and reducing the analog and MPEG
noise that currently plagues DVD and broadcast
sources.

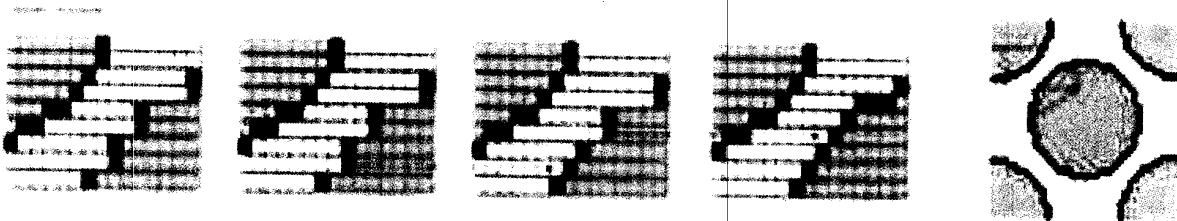
13
14 22. The claim chart of Exhibit B shows the basis for my opinion that
15 various HQV enabled Silicon Optix chips families are used by Vizio infringe the
16 '842 patent. However, I will describe a summary of the analysis supporting my
conclusion below:

17
18 23. Jed Deame is a co-founder and General Manager of
19 Teranex/SiliconOptix who wrote a series of articles describing HQV processing.
20 Mr. Deame's articles provide a series of images which show the results of the
21 logical operations performed by HQV. For instance, one of Mr. Deame's articles
22 (available at
23 http://www.digitalsalesgroup.com/directlines/onkyo/newsletters/HQV_processing
24

1 for Reon.pdf) shows an image with “missing pixels” (shown by the grey pixel
2 areas) being processed:



10 24. The sequential images providing analysis of the detail within the red
11 box of the image are further provided:



15 25. The images (identified by Silicon Optix as a so-called second stage
16 diagonal interpolation) uses logic to replace the value of the input virtual pixel to
17 provide a averaging of spatial pixels having known values (e.g., the diagonally
18 adjacent pixels shown above) to retain better image detail in the generation of the
19 progressive image for display. Thus, based upon this evidence (as explained more
20 fully in the claim chart of Exhibit B), I conclude that Vizio televisions using HQV
21 enabled Reon processors infringe claims 7-9 and 14-15 of the ‘842 patent.

C. Infringement by Vizio Products Using DCDi Enabled Chips

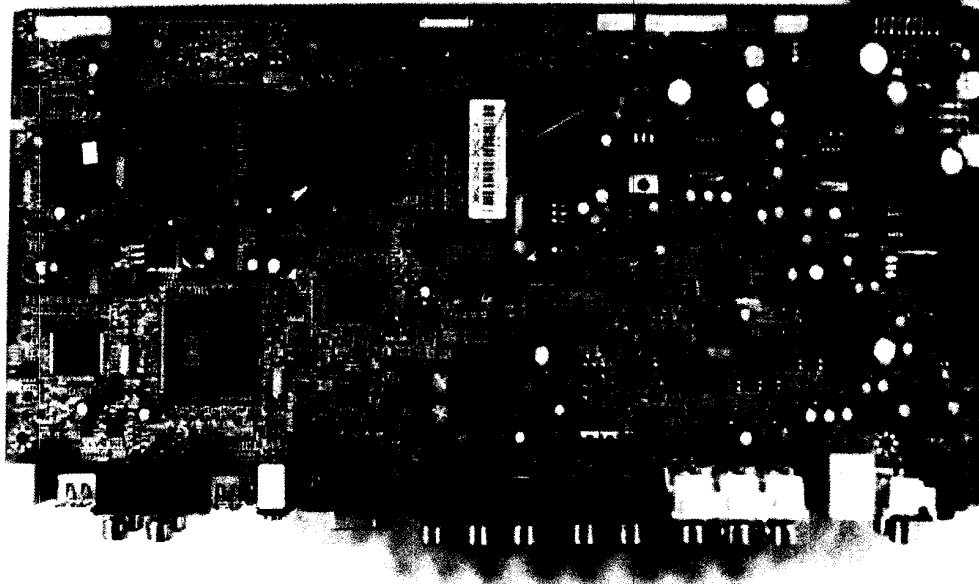
26. It is my opinion that certain Vizio televisions use Genesis chips to handle video processing and enhancement as part of their routine functions. Based upon publicly available information that I have reviewed, it is my opinion that such chips use the Genesis/Faroudja DCDi technology. An example of such chips and technology as used in Vizio's televisions may be found in the service manual for the Vizio P50 HDM television (which uses the Genesis FLI 8532 chip) at <http://nationalservicealliance.com/visio/VIZIO-P50HDM.pdf>. As this manual shows (at p. 8-2), this chip includes DCDi Cinema functionality, which detects and processes any input format:

The operation of Video Processor FLI8532

The Genesis Microchip FLI8532 includes an integrated 3-D Digital Video Decoder with Faroudja DCDi Cinema™ video format conversion, video enhancement, and noise reduction.

The auto-detection and Faroudja DCDi Cinema™ technology allow the FLI8532 to detect, process, and enhance any video or PC graphic format. The FLI8532 supports many worldwide VBI standards for applications of Teletext, Closed Captioning, V-Chip, and other VBI technologies.

27. Likewise, the service manual for the Vizio VP50HDTV10A television, available at <http://76.254.74.102/Updated%20Field%20Tech%20Service%20Manuals/Vizio%20Amtran%20Field%20Tech%20Service%20Manuals/VP%20series/VP50%20HDTV10A%20Service%20Manual.pdf> shows (at p. 9-2) a Genesis Cortez chip (FLI8532):



As the FLI 8532 chip data sheet shows (see http://www.datasheet.co.kr/datasheet-html/F/L/I/FLI8532_GenesisMicrochip.pdf.html), the FLI8532 includes a version of DCDi Cinema that includes not only per pixel motion adaptive de-interlacing, but also 3:2 pull down detection and processing, e.g.:

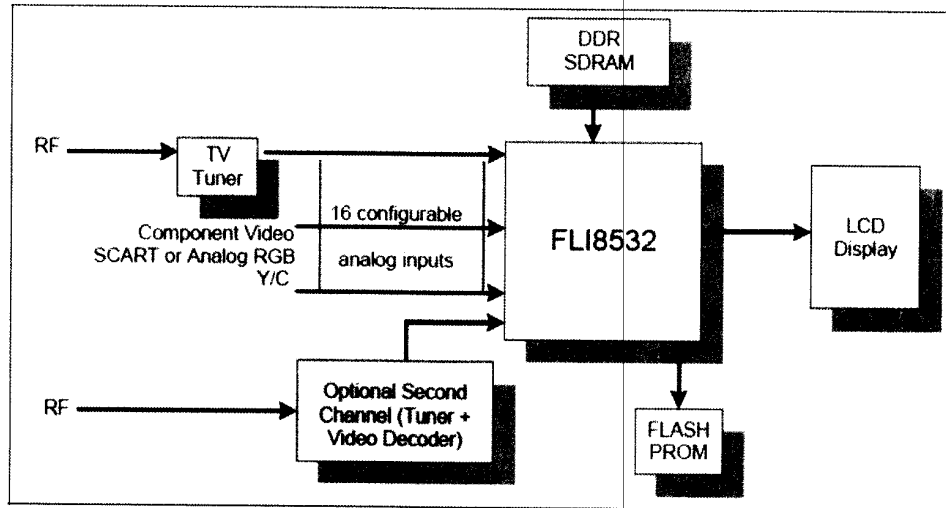
FAROUDJA DCDi CINEMA™ FORMAT CONVERSION

- Low Angle De-interlacing Processing
- Per Pixel Motion Adaptive De-interlacing (MADi) up to 1080i format
- Format conversion up to SXGA resolutions
- Panoramic and Anamorphic Non-linear Scaling
- Adaptive Media Display Processing for 3:2 and 2:2 video content
- Adaptive 3D Noise Reductions
- Media Noise Reduction for MPEG inputs

28. The claim chart of Exhibit C explains the basis for my opinion that various DCDi Cinema enabled Genesis chips families are used by Vizio infringe the '840 patent. However, I will describe a summary of the analysis supporting my conclusion below.

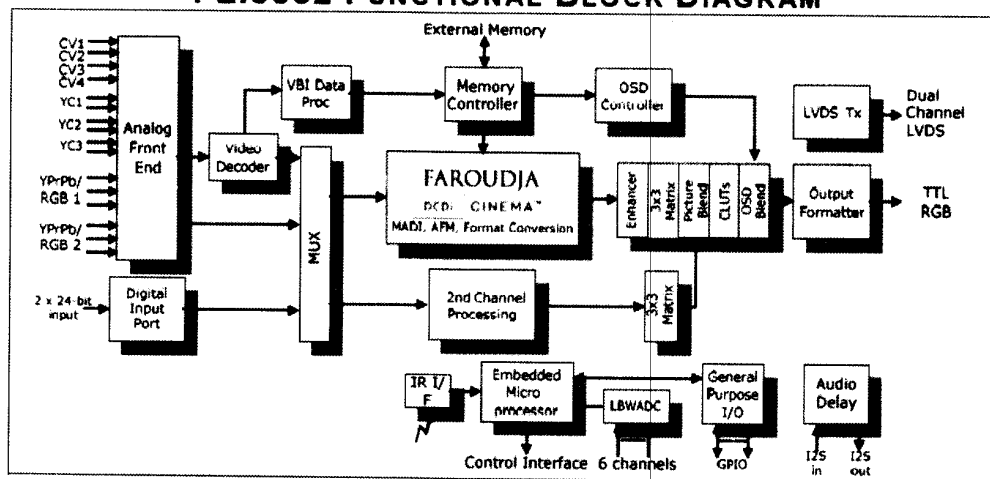
29. Genesis Cinema includes modules for format detection and conversion. The basic functionality for the Genesis chips (as exemplified by the FLI 8532) is described in the data sheet cited above and in the following diagram:

FLI8532 SYSTEM DIAGRAM



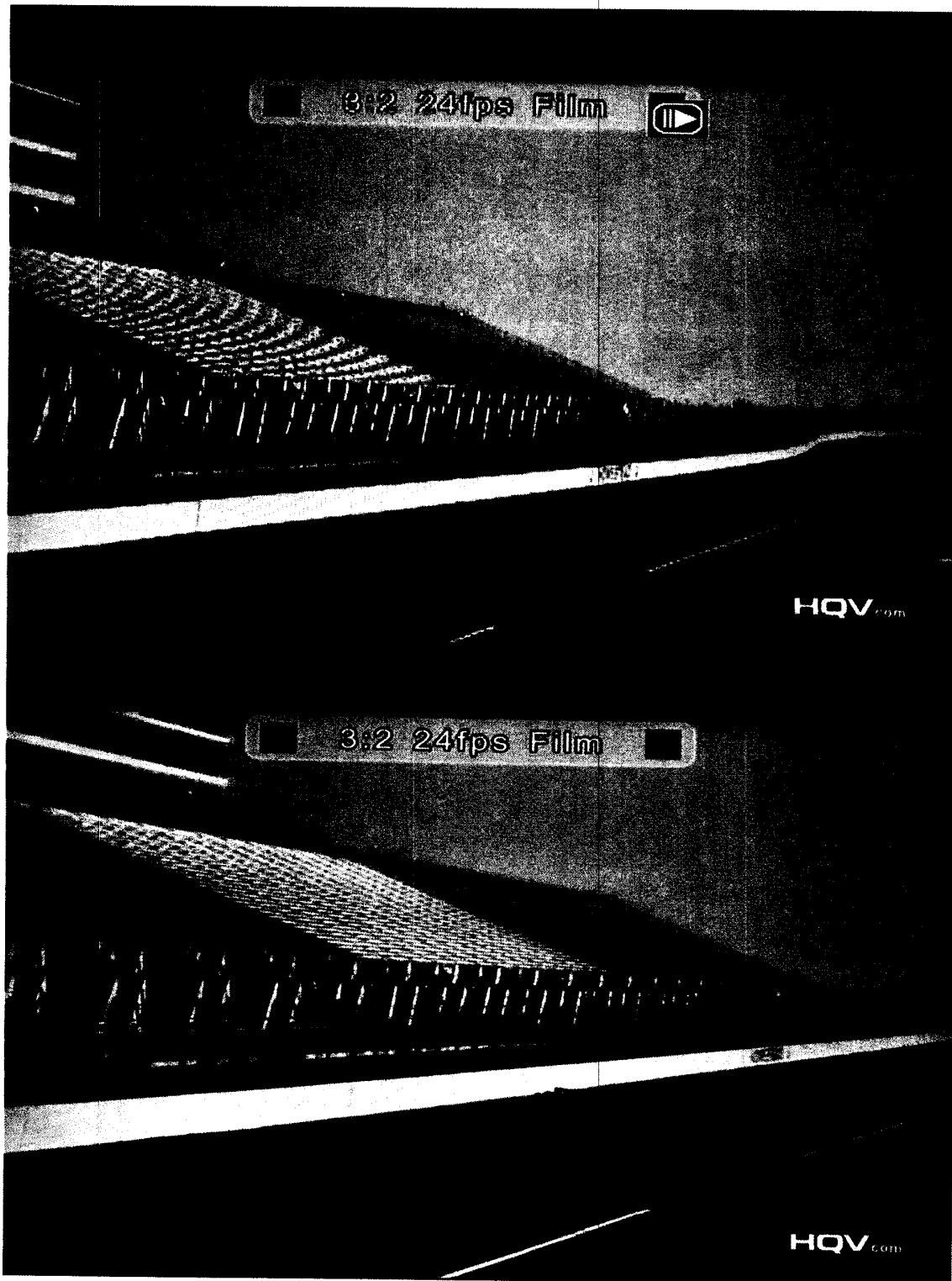
In addition, this same datasheet describes the processing of various neighborhoods in connection with format detection, conversion and enhancement as reflected in the 3x3 matrices cited in the FLI 8532 functional block diagram:

FLI8532 FUNCTIONAL BLOCK DIAGRAM



30. Furthermore, I have personally tested the processing functions of Vizio televisions employing the FLI 8532 functionality. Specifically, I tested a

1 GV46L television to show the removal of entropy or random pixels based upon the
2 detection of signal type (e.g., film mode). The images I tested, as shown below,
3 reflect the DCDi processing of the signal both before and after the automatic
4 detection of the presence of a film type input. As can be seen with the corrected
5 image on top, there are certain fine errors in the details of the test image (e.g., the
6 jaggies on the infield white stripe, and moiré patterns or waves on the seats in the
7 stands). The second photo shows that the processor has locked into the cadence,
8 thus removing these artifacts. This occurs in about a ¼ of a second on the GV46L
9 Vizio TV:



31. Based upon this analysis (as set forth more fully in Exhibit C), I have determined that Vizio products using DCDi processing with cadence error

1 detection and processing infringe claims 56-59 and 62 of the '840 patent.

2 **D. Infringement by Vizio Products Using MDDi Enabled Chips**

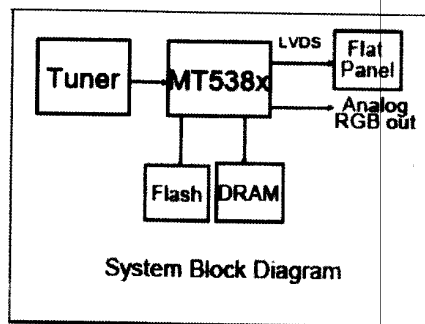
3 32. It is my opinion that many Vizio televisions use MediaTek chips to
4 handle video processing and enhancement as part of their routine functions. Based
5 upon publicly available information that I have reviewed, it is my opinion that such
6 chips use MediaTek's MDDi ("Media Direct De-Interlacing") technology. An
7 example of such chips and technology as used in Vizio's televisions may be found
8 in the Service Manual for Vizio's VX32L and VW32L televisions, which is
9 available at

10 http://www.smarthelpcenter.com/manuals/Vizio/VIZIO_VX32L_VW32L_HDTV2

11 [0A_AUO_LPL_Samsung_Service_Manual_C.pdf](#). That manual (at page 7-3)

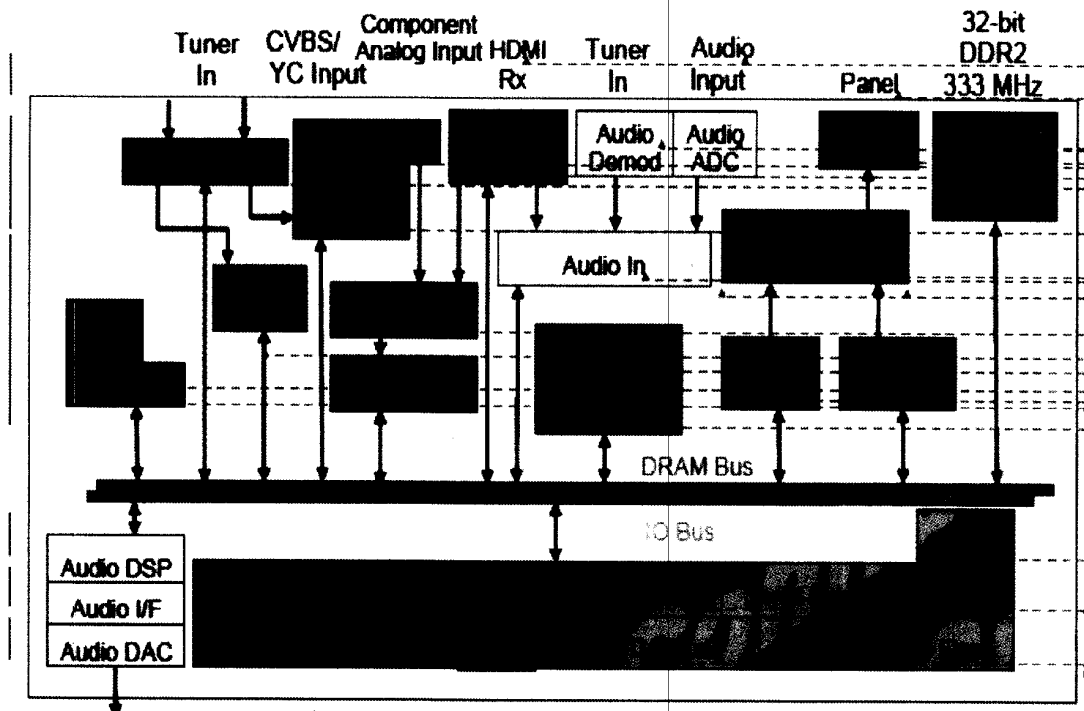
12 provides a simple diagram for the video processing chip used by Vizio:

13 **System Block Diagram**



19 The functional block diagram below further clarifies the presence of the de-
20 interlacing function in that chip (as shown in the reference to "de-interlace"):

Functional Block Diagram



Other publicly available service manuals for Vizio televisions incorporating MDDi further tout the television's ability to detect film source or 3:2 pull down source (in order to compensate for errors from such editing processes), and further tout the excellence of low angle image processing used by the Vizio televisions as part of the de-interlacing process:

6. Video Plane:

1. Support video capture and over scan
 2. Flesh tone management
 3. Gamma/anti-Gamma correction
 4. Color Transient Improvement (CTI)
 5. 2D peaking
 6. Saturation/hue adjustment
 7. Brightness and contrast adjustment
 8. Black and White level extender
 9. Adaptive Luma/Chroma management
 10. Automatic detect films or video sources
 11. 3:2/2:2 pull down source detection
 12. The MT5380 support bob mode de-interlace.
- The MT5381 support 1366 width motion-adaptive de-interlace.
The MT5382 supports maximum 1920 width motion-adaptive de-interlace. The entire MT538x family supports excellent low angle image processing.

http://www.smarthelpcenter.com/manuals/Vizio/VIZIO_VX32L_VW32L_HDTV2_0A_AUO_LPL_Samsung_Service_Manual_C.pdf at 7-5.

33. The claim charts of Exhibits D and E explain the basis for my opinion that various MDDi enabled MediaTek chips families that are used by Vizio infringe the '842 and '840 patents. The analysis supporting my conclusion is summarized as follows:

34. Since the end of 2003, MediaTek appears to have touted its MDDi features in a variety of different video processor chips. (See <http://www.myce.com/news/MediaTek-introduces-DivX-Pro-chip-with-DRM-for-on-line-movies-7340/>, December 12, 2003 press release discussing "MediaTek's patent-pending scan algorithm, the MDDi (media direct de-interlacing) technology"). The MDDi feature appears to have been subsequently patented. (See <http://www.prnewswire.com/news-releases/mediatek-releases-worlds-first-120hz-soc-solutions-for-high-end-smart-tv-136719823.html>, noting "MediaTek's patented MDDi™ de-interlace solution"). The use of the MDDi solution is reflected in a variety of chip model numbers used in Vizio televisions, including

1 televisions using the MediaTek MT8202 and MT5351 chips (see, e.g.,
2 http://nationalservicealliance.com/visio/VIZIO-GV42L_HDTV.pdf), the MT5372
3 (See, e.g.,
4 [http://www.smarthelpcenter.com/manuals/Vizio/VIZIO_VX37LHDTV10A_Service](http://www.smarthelpcenter.com/manuals/Vizio/VIZIO_VX37LHDTV10A_Service_Manual_C.pdf)
5 [e_Manual_C.pdf](http://www.smarthelpcenter.com/manuals/Vizio/VIZIO_VX37LHDTV10A_Service_Manual_C.pdf)), the MT5380, MT5381, the MT5382 (the so called MT538x
6 family, as discussed above).

7 35. As part of my analysis, I have relied upon a search by counsel on the
8 LEXIS/NEXIS database of U.S. patents involving the terms “MediaTek” and “de-
9 interlacing,” the search being limited to issued patents which were filed by 2004 or
10 earlier and which were assigned to MediaTek. In the absence of any discovery
11 from Vizio providing further detail beyond the publicly available service manuals
12 also cited in my report, I have relied upon such information in a limited fashion (as
13 set forth in the claim charts) to describe de-interlacing processes owned and
14 claimed by MediaTek. If or when any information is provided by Vizio which
15 gives further detail into the operation of its MDDi enabled televisions (or an
16 identification of further specific sets containing such features), I reserve my right
17 to supplement or modify my opinions as set forth in this report and its attached
18 charts.

19 **III. CONCLUSION**

20 36. In this report and in the claim charts attached as Exhibits, I have
21 analyzed Vizio televisions and displays and/or related documentation that
22 incorporate HQV video processing chips from Silicon Optix (now Qualcomm),
23 DCDi video processing chips from Genesis Microsystems, and MDDi processing
24

1 chips from MediaTek. Based on my experience and analysis, my opinions are that
2 a) the de-interlacing processes enabled by the HQV and MDDi enabled chips (and
3 therefore into the Vizio products employing such chips) infringe claims 7-9 and
4 14-15 of the '842 patent; and b) the de-interlacing processes enabled by the DCDi
5 and MDDi enabled chips (and therefore into the Vizio products employing such
6 chips) infringe claims 56-59 and 62 of the '840 patent

7 37. This analysis is based on information that has been provided to me to
8 this date. I reserve my right to supplement my opinion based on additional
9 evidence or documentation produced in this case.

10 I swear under penalty of perjury that the foregoing to true to the best of my
11 knowledge and belief.

12 Date:


D. Michael Holmes



Dear VIZIO Customer,

Congratulations on your new VIZIO VP50 High Definition Plasma Television purchase. Thank you for your support. For maximum benefit of your set, please read these instructions before making any adjustments, and retain them for future reference. We hope you will experience many years of enjoyment from your new VIZIO VP50 High Definition Television.

For assistance, please call 949-668-0588 or e-mail us at techsupport@vinc.com.

To purchase or inquire about accessories and installation services for your VIZIO Plasma TV, please visit our website at www.vizioce.com or call toll free at **888-VIZIOCE (888-849-4623)**.

We recommend you register your VIZIO VP50HDTV either at our website www.vizioce.com or fill in your registration card and mail it in. For peace of mind and to protect your investment beyond the standard warranty, VIZIO offers on-site extended warranty service plans. These plans give additional coverage during the standard warranty period. Visit our website or call us to purchase a plan.

Write down the serial number located on the back of your VP50.

Purchase Date _____

VIZIO is a registered trademark of V, Inc.

SRS TruSurround XT, SRS and **CS** symbol are trademarks of SRS Labs, Inc.
TruSurround XT TruSurround XT technology is incorporated under license from SRS Labs, Inc.

HDMI logo and "High Definition Multimedia Interface" are registered trademarks of HDMI Licensing LLC.

"DCDi by Faroudja" is a registered trademark of Genesis Microchip Inc.

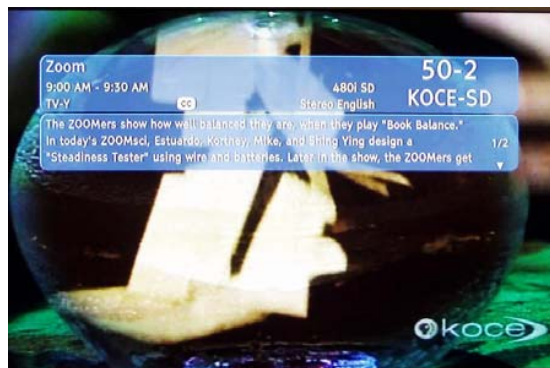


3.4.2 DTV Channel Information

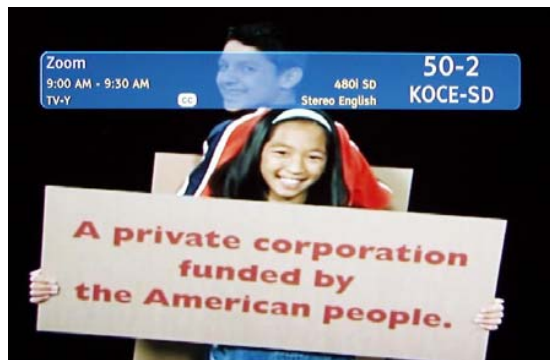
When a channel is selected, an information header is shown over the picture for a few seconds. This information consists of the channel number and name, the format in which the program is broadcast (480i SD, 480P SD, 720P HD, 1080i HD), audio channel 1/2 or 2/2 (omitted if alternate channel is not broadcast), language, program title, program start and end time, program rating and if CC is available.



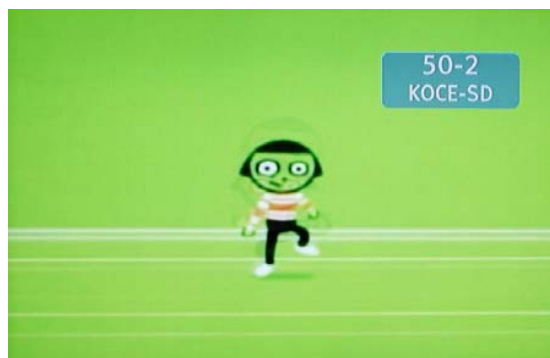
When you press the INFO button on the remote, you not only get the information header displayed, but also a short summary of the program content when available from the broadcaster. If you do nothing else with the INFO button, these panels will remain on the screen, even when changing channels.



Press the INFO button and the program summary will disappear, but the information header will remain.



Press the INFO button again and only the channel number and name will remain. Press the INFO button one more time and this will disappear.



Chapter 5 Miscellaneous Information

5.1 Specifications

Specifications	
Panel	50" Diagonal, 16:9 Aspect Ratio
Resolution	1366 x 768 pixels
Pixel (Dot) Pitch	0.81mm (H) x 0.81mm (V)
Display Compatibility	HDTV (720P)
Signal Compatibility	480i (SDTV), 480P (EDTV), 720P (HDTV), 1080i (HDTV)
Colors	231 Billion
Brightness	1,500 cd/m ² (typical)
Contrast	15,000:1 (max)
Viewing Angle	>170° (horizontal and vertical)
Inputs	1x RF, 2x Composite Video plus Stereo Audio, 2x S-Video plus Stereo Audio, 2x Component YPbPr plus Stereo Audio, 1x Analog RGB plus Stereo Audio (shared with Digital Video), 2x Digital Video (HDMI TM **) with HDCP plus Stereo Audio (RCA)
Outputs	1x 5.1 Audio from DTV input only (SPDIF Optical), 1x Stereo Audio (RCA), 1x Headphone (Stereo Mini-Jack)
Features	Single Scan Technology for Higher Contrast, Reduced Solarisation and Reduced False Contouring, PIP, POP, CC, V-Chip, 3D Comb Filter, Zoom, Freeze, DCDi® by Faroudja*** Motion Adaptive De-Interlace, 3-D Noise Reduction, Sharpness Improvement, Non-linear Chroma Enhancement, Closed Color Suppression, Non-Linear Scaling, Adaptive Contrast
Speakers	Built-in, 10W x 2
Panel Life	60,000 hours to half the original brightness
Power	
Input	IEC Connector for direct power line connection
Voltage Range	100 ~ 240Vac at 50/60Hz
Power Consumption	550W Max (490W average)
Environmental Conditions	
Operating	Temperature: 5°C~35°C, Relative Humidity: 20~80%, Altitude: 0~6,560 ft
Non-Operating	Temperature: -20°C~50°C, Relative Humidity: 10~90%, Altitude: 0~9,840 ft
Dimensions	48.8" x 34.3" x 12.2" (1241 x 871 x 310 mm) w/stand, 48.8" x 33.5" x 3.89" (1241 x 850 x 99 mm) w/o stand
Net Weight	85 lbs with stand; 76 lbs without stand
Gross Weight	144 lbs (65.2 kg)
Certifications	CSA, FCC Class B

*Product specifications may change without notice or obligation.

** HDMI, the HDMI logo and High-Definition Multimedia Interface are trademarks or registered trademarks of HDMITM Licensing LLC.



Setup Code for VCR's	
Pioneer	20042, 20067
Polk Audio	20081
Profitronic	20240
Proscan	20060
Protec	20072
Pulsar	20039
Qisheng	20060
Quasar	20035, 20162
Radix	20037
Randex	20037
RCA	20060, 20035, 20240, 20042, 20880
Realistic	20035, 20037, 20048, 20047, 20104
ReplayTV	20616
Runco	20039
Sampo	20037, 20048
Samsung	20240, 20045, 20432
Sanky	20048, 20039
Sansui	20067, 20209, 20479
Sanyo	20047, 20240, 20104
Scott	20184, 20045, 20121, 20043
Sears	20035, 20037, 20047, 20042, 20104
Sharp	20048, 20209
Shintom	20072
Shogun	20240
Singer	20072
Sonic Blue	20616
Sony	20035, 20032, 20033, 20636, 21972
STS	20042
Sylvania	20035, 20081, 20043
Systemax	21972
Tagar Systems	21972
Tashiko	20037

Setup Code for VCR's	
Tatung	20045, 20067
Technics	20035, 20162
Teco	20035, 20037, 20048, 20038
Teknika	20035, 20037
Tivo	20636, 20618, 21503, 20739
TMK	20240
Toshiba	20045, 20042, 20067, 20043, 21503, 21008, 21972
Totevision	20037, 20240
Touch	21972
Unitech	20240
Vector	20045
Vector Research	20038
Victor	20067
Video Concepts	20045
Videomagic	20037
Videosonic	20240
Viewsonic	21972
Wards	20060, 20035, 20048, 20047, 20081, 20240, 20042, 20072
White Westinghouse	20209, 20072
XR-1000	20035, 20072
Yamaha	20038
Zenith	20039, 20033, 20209, 20479
ZT Group	21972

Setup Code for Cable Converters	
ABC	00003, 00008, 00014
Americast	00899
Bell & Howell	00014
Bell South	00899
Clearmaster	00883
ClearMax	00883
Coolmax	00883
Daeryung	01877, 00877,

Setup Code for Cable Converters	
	00477, 00008
Digi	00637
Director	00476
Dumont	00637
Gehua	00476
General Instrument	00476, 00810, 00276, 00003, 00014
GoldStar	00144
Hamlin	00009, 00273
Hitachi	00014
Jerrold	00476, 00810, 00276, 00003, 00012, 00014
KNC	00008
LG	00144
Memorex	00000
Motorola	00476, 00810, 00276, 01254, 01376
MultiVision	00012
Pace	01877, 00237
Panasonic	00000, 00008, 00107
Panther	00637
Paragon	00000
Philips	00317, 01305
Pioneer	01877, 00877, 00144, 00533
Pulsar	00000
Quasar	00000
RadioShack	00883
Regal	00279, 00273
Runco	00000
Samsung	00000, 00144
Scientific Atlanta	01877, 00877, 00477, 00008
Sony	01006
Starcom	00003, 00014
Supercable	00276
Supermax	00883
Tocom	00012
Torx	00003



Dickman, Katy

From: Hintz, John M. <John.Hintz@haynesboone.com>
Sent: Friday, April 05, 2013 11:03
To: Ferri, Dan; apruetz@glaserweil.com; ckoole@glaserweil.com;
enoch.liang@ltlattorneys.com; srh@ltlcounsel.com
Subject: Oplus Technologies' Subpoena of MediaTek USA Inc. -- DRAFT Confidentiality and Non-Disclosure Agreement
Attachments: MediaTek USA_s Confidentiality and Non-Disclosure Agreement re Oplus_210451(1).docx

It is my understanding that a protective order has not been entered in the underlying action, Oplus Technologies, Ltd. V. Sears Holdings Corporation et al., Case No. 2:12-cv-5707-MRP-E (C.D. Cal.), the action from which MediaTek USA Inc. was served with subpoenas. As explained in MediaTek USA Inc.'s objections and responses to Oplus Technologies' document subpoena, although MediaTek USA Inc. does not believe that it is in possession, custody, or control of documents responsive to Oplus Technologies' subpoena, MediaTek Inc. is prepared to produce technical documents and computer code voluntarily on the condition that (1) a "Confidentiality and Non-Disclosure Agreement" is entered into by all parties who wish to receive MediaTek Inc.'s documents and code in order to protect that information and (2) that no deposition be taken of MediaTek USA Inc.

As to the first condition, I attach a draft "Confidentiality and Non-Disclosure Agreement" for your consideration. Please let me know if you have any comments or suggested changes to this draft.

haynesboone

John Hintz

Partner
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IN THE UNITED STATES DISTRICT COURT
FOR THE CENTRAL DISTRICT OF CALIFORNIA
WESTERN DIVISION

-oOo-

OPLUS TECHNOLOGIES, LTD.,)	
)	
Plaintiff,)	
)	
vs.	)	Case No.
	)	CV12-5707 MRP (E)
SEARS HOLDINGS CORPORATION)	
and VIZIO, INC.,)	
)	
Defendants.)	
)	

DEPOSITION OF J. CARL COOPER
Friday, August 9, 2013
Incline Village, Nevada

Job No. CS1704372

REPORTED BY: SUSAN E. BELINGHERI, CCR #655

<p style="text-align: right;">Page 2</p> <p>1 APPEARANCES:</p> <p>2</p> <p>3</p> <p>4 For the Plaintiff: NIRO, HALLER & NIRO Attorneys at Law By: KARA SZPONDOWSKI, ESQ. 181 West Madison, Suite 4600 Chicago, IL 60602</p> <p>5</p> <p>6</p> <p>7</p> <p>8 For the Defendants: LEE TRAN LIANG & WANG LLP Attorneys at Law By: STEVEN R. HANSEN, ESQ. 601 South Figueroa Street, Suite 3900 Los Angeles, CA 90017</p> <p>9</p> <p>10</p> <p>11</p> <p>12</p> <p>13</p> <p>14 The Videographer: A CORRAO VIDEO Dejon Durio 5375 Kietzke Lane Reno, NV</p> <p>15</p> <p>16</p> <p>17</p> <p>18</p> <p>19</p> <p>20</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p> <p>25</p>	<p style="text-align: right;">Page 4</p> <p>1 ATTORNEYS NOTES/CORRECTIONS</p> <p>2</p> <p>3 PAGE LINE</p> <p>4</p> <p>5</p> <p>6</p> <p>7</p> <p>8</p> <p>9</p> <p>10</p> <p>11</p> <p>12</p> <p>13</p> <p>14</p> <p>15</p> <p>16</p> <p>17</p> <p>18</p> <p>19</p> <p>20</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p> <p>25</p>
<p style="text-align: right;">Page 3</p> <p>1 INDEX</p> <p>2</p> <p>3 EXAMINATION: PAGE:</p> <p>4 By Mr. Hansen 6</p> <p>5 By Ms. Szpondowski 243</p> <p>6 By Mr. Hansen (Further) 249</p> <p>7</p> <p>8 EXHIBITS: DESCRIPTION: PAGE:</p> <p>9 Exhibit 31 Subpoena to produce documents Information, or Objects, or to Permit Inspection of Premises in a Civil Action..... 20</p> <p>10</p> <p>11 Exhibit 32 Timesheets..... 38</p> <p>12 Exhibit 33 Mr. Cooper Expert Report, with Exhibits..... 48</p> <p>13 Exhibit 34 Declaration of Richard Ferraro. 56</p> <p>14 Exhibit 35 A Deinterlacer for IQTV Receivers and Multimedia Applications, R. Simonetti.... 79</p> <p>15 Exhibit 36 U.S. Patent 6,239,842..... 97</p> <p>16 Exhibit 37 Handwritten expressions by Mr. Hansen..... 104</p> <p>17 Exhibit 38 U.S. Patent 7,271,840..... 110</p> <p>18 Exhibit 39 U.S. Patent 6,529,637..... 111</p> <p>19 Exhibit 40 Expert Report of Mr. Cooper, TLC v. Dell..... 127</p> <p>20 Exhibit 41 U.S. Patent 7,286,186..... 129</p> <p>21 Exhibit 42 Claim Construction Order..... 167</p> <p>22 Exhibit 43 U.S. Patent 4,573,070..... 213</p> <p>23 Exhibit 44 U.S. Patent 6,535,254..... 215</p> <p>24 Exhibit 45 U.S. Patent 6,133,957..... 217</p> <p>25 Exhibit 46 U.S. Patent 5,598,226..... 220</p> <p>Exhibit 47 U.S. Patent 6,563,550..... 226</p> <p>Exhibit 48 Article, Meet the Original Patent Troll..... 231</p> <p>Exhibit 49 Declaration Under 37 CFR 1.132. 235</p> <p>Exhibit 50 Judge Posner Memorandum Opinion 237</p> <p>24</p> <p>25</p>	<p style="text-align: right;">Page 5</p> <p>1 PURSUANT TO NOTICE, and on Friday, the 9th</p> <p>2 day of August, 2013, at the hour of 9:02 a.m. of said</p> <p>3 day, at the offices of Hyatt Regency, 111 Country Club</p> <p>4 Drive, Incline Village, Nevada, before me, Susan E.</p> <p>5 Belingheri, a notary public, personally appeared J. CARL</p> <p>6 COOPER.</p> <p>7 -oOo-</p> <p>8</p> <p>9 THE VIDEOGRAPHER: We are going on record.</p> <p>10 The date is Friday, August 9th, 2013, and the monitor</p> <p>11 time is approximately 9:02 a.m.</p> <p>12 This is the video deposition of J. Carl</p> <p>13 Cooper in the matter of Oplus Technologies, plaintiff,</p> <p>14 versus Sears Holdings, defendants. The case number is</p> <p>15 CV12-5707 MRP (E), as filed in the United States</p> <p>16 District Court for the Central District of California,</p> <p>17 Western Division.</p> <p>18 This deposition is being held at Hyatt</p> <p>19 Regency, 111 Country Club Drive, Incline Village,</p> <p>20 Nevada.</p> <p>21 The court reporter is Susan Belingheri of</p> <p>22 Bonanza Reporting here on behalf of Veritext. I am a</p> <p>23 certified court video specialist. My name is Dejon</p> <p>24 Durio of A Corrao Video. I too are here on behalf of</p> <p>25 Veritext -- New Jersey.</p>

2 (Pages 2 to 5)

<p style="text-align: right;">Page 58</p> <p>1 A. I agree that that would be a reasonable opinion 2 for him to offer. I also note in paragraph ten that he 3 goes back to Dr. Hemami's opinion and says his 4 definition combines the two alternative definitions that 5 she put forward by combining master's degrees with the 6 three years experience and saying then that an 7 extraordinary student with a master's degree might be 8 able to understand the technology disclosed. And I 9 would go beyond that to say that an extraordinary amount 10 of work experience would be more than suitable for 11 replacing a master's degree education. 12 Q. Mr. Ferraro didn't say that in his declaration, 13 did he? 14 A. No. 15 Q. Okay. Were there any other opinions that you saw 16 in Mr. Ferraro's declaration that you disagreed with? 17 MS. SZPONDOWSKI: Object to form. 18 THE WITNESS: Off of the top of my head, as 19 I read the declaration, I didn't, I didn't have anything 20 I disagreed with enough to, to commit it to memory. My, 21 my reason for going through it was predominantly to 22 verify some of the statements that were attributed to 23 him. 24 BY MR. HANSEN: 25 Q. Please turn to page 12 of Exhibit 34.</p>	<p style="text-align: right;">Page 60</p> <p>1 Q. What, what do you base your disagreement on? 2 A. The disagreement with his heading or the 3 disagreement with my knowledge? 4 Q. Why do you disagree with that statement in 5 heading F? 6 A. Well, the heading F is supported by paragraph 31, 7 where the point is that the absolute value of a linear 8 combination includes a linear combination, or at least 9 may include a linear combination, followed by an 10 absolute value operator. He's not saying that the 11 absolute value of the linear combination is itself an 12 absolute value -- or is itself a linear combination. 13 I think you have to take both the heading and the 14 paragraph together to understand his opinion. And 15 taking the heading in, in an abstract, or in a vacuum 16 without looking at the paragraph I think is improper and 17 I think it leads to an improper conclusion as to what 18 his opinion is. 19 Q. So it's your opinion that once a linear 20 combination is subject to an absolute value operation, 21 it loses its identity as a linear combination? 22 MS. SZPONDOWSKI: Object to form. 23 THE WITNESS: The inclusion of an absolute 24 value is a non-linear operation. 25</p>
<p style="text-align: right;">Page 59</p> <p>1 A. Yes. 2 Q. There's a heading F there in the page, on the 3 page we're in? 4 A. Yes, there is. 5 Q. And it reads -- 6 A. Heading G? 7 Q. I'm sorry, F. 8 A. Oh, F. Okay. 9 Q. And F reads: 10 An absolute value of a linear combination is a 11 linear combination. 12 Do you see that? 13 A. I do. 14 Q. Do you agree with that statement? 15 A. In the way that he explains it, I agree that the 16 absolute value of a linear combination would include a 17 linear combination, which is followed by an absolute 18 value operator. I think that heading, probably taken by 19 itself, would be construed, or misconstrued, totally out 20 of context, as has been done in this case. 21 Q. So you -- let's just look at the statement in F, 22 forgetting what's in paragraph 31. Do you agree with 23 the statement an absolute value of a linear combination 24 is a linear combination? 25 A. No.</p>	<p style="text-align: right;">Page 61</p> <p>1 BY MR. HANSEN: 2 Q. So looking in paragraph 31, the last statement 3 is: $Z = \text{the absolute value } ax + by$, correct? 4 A. That's the, that's the equation he has written 5 there, yes. 6 Q. Okay. And the two vertical lines are an absolute 7 value operator, right? 8 A. That's correct. 9 Q. So you would agree that $ax + by$ is a linear 10 combination. 11 A. As he is using linear combination and using that 12 example, yes. 13 Q. All right. How about as you use linear 14 combination, do you agree that $ax + by$ is a linear 15 combination? 16 A. Depends on how a and x and b and y are defined. 17 Q. And how do they need to be defined in order for 18 it to be a linear combination? 19 A. If they are themselves nonlinear, then it 20 wouldn't be, necessarily, a linear combination. 21 Q. Isn't the equation shown in paragraph 31 one in 22 which the variable x is to the first power? 23 A. As I understand it, yes. 24 Q. And how is that a nonlinear term? 25 A. He doesn't explicitly define a and x and b and y.</p>

16 (Pages 58 to 61)

<p style="text-align: right;">Page 62</p> <p>1 As I read the paragraph in total, it's my understanding 2 that his point is that $ax + by$ is considered a linear 3 combination, but the absolute value follows the linear 4 combination. And, and absolute value is a nonlinear 5 operator. 6 Q. But in your view $ax + by$ is not necessarily a 7 linear combination; is that right? 8 A. No, you're misstating my answers. As used here, 9 Mr. Ferraro is giving an example, and the example is 10 that $ax + by$ is, by example, a linear combination. He 11 is not expressing all possible combinations of ax and 12 by, which you had asked about earlier. So what he is 13 saying is ax and by is a linear combination, and it is 14 followed by an absolute value combination. 15 Q. All right. Let's put aside what he says and just 16 look at the equation. 17 A. But that's, I think, improper. 18 Q. Well, then we'll see if you can't do it. 19 A. It's like taking -- 20 Q. We'll see if you can't do it. 21 A. -- taking F without paragraph 31. It's improper, 22 it misconstrues what the opinion is, and in my opinion I 23 don't believe that's a proper way to address this 24 statement. 25 Q. So if you see the expression $ax + by$, can you</p>	<p style="text-align: right;">Page 64</p> <p>1 defines $ax + by$ as a linear combination. 2 A. No, it's not defined specifically as a linear 3 combination. He is saying that is an example of a 4 linear combination followed by an absolute value 5 operator. Given that wording, which describes the 6 example, then I believe he means $ax + by$ to be an 7 example of a linear combination followed by an absolute 8 value operator. 9 Q. And you believe that he means that, that the z is 10 no longer a linear combination because of the absolute 11 value operator? 12 A. He's, he's not addressing that. 13 Q. So you can't tell me -- 14 A. He is giving this, he is giving this equation, 15 $z =$ the absolute value of $ax + by$, as an example of an 16 absolute value of a linear combination can be viewed as 17 a linear combination followed by an absolute value 18 operator. 19 Q. So can you tell from that statement whether Dr. 20 Ferraro, or I'm sorry, Mr. Ferraro regards the use of 21 the absolute value operator as one that converts a 22 linear combination to a nonlinear combination? 23 MS. SZPONDOWSKI: Object to form. 24 THE WITNESS: I believe it's an example that 25 demonstrates, in an equation form, the preceding part of</p>
<p style="text-align: right;">Page 63</p> <p>1 tell from that expression alone whether it's a linear 2 combination of the variables x and y? 3 A. In an abstract without making assumptions that 4 would normally be made in mathematics, you can't tell 5 what $ax + by$ means. It might be the solution to a 6 crossword puzzle. And when you ask a question in the 7 abstract without giving a definition or a proper frame 8 of reference, you can't know what ax and by is. 9 The frame of reference that is being used here by 10 Mr. Ferraro is in a mathematical frame of reference. 11 And I don't think it's fair or proper to separate either 12 statement F, or heading F, or statement 31, in the 13 abstract. I think they need to be taken into context. 14 Q. So you haven't had a discussion with Mr. Ferraro 15 about what he meant in paragraph 31, right? 16 A. No, I have not. 17 Q. So other than what we've talked about, is there 18 anything that you recall coming to mind as you read 19 Mr. Ferraro's declaration that you didn't agree with? 20 A. Well, nothing as I sit here comes to mind, but if 21 you'd like I'll be happy to go through it paragraph by 22 paragraph. 23 Q. No, I'm just asking what comes to mind. 24 A. Okay. 25 Q. So in his example in paragraph 31, Mr. Ferraro</p>	<p style="text-align: right;">Page 65</p> <p>1 the sentence. In other words, the part of the sentence 2 that starts an absolute value and ends at value 3 operator, comma. 4 BY MR. HANSEN: 5 Q. I understand that, but as I understood it earlier 6 you said a linear combination loses its identity as a 7 linear combination once you take the absolute value of 8 it. Is that correct? 9 A. I said an absolute value operation is nonlinear. 10 If you do an absolute value of a linear combination, the 11 total is no longer linear. 12 Q. Can you tell from paragraph 31 whether Mr. 13 Ferraro agrees with that? 14 MS. SZPONDOWSKI: Object to form. 15 THE WITNESS: In that he disagrees with the 16 conclusion of Dr. Hemami that an absolute value of a 17 linear combination is not a linear combination, I think 18 he would, by that disagreement, also be saying that an 19 absolute value of a linear combination is not a linear 20 combination. 21 BY MR. HANSEN: 22 Q. Okay. 23 A. And I might add here, now that it has come to 24 mind, that the heading F really refers to Dr. Hemami's 25 assertion, not to what Mr. Ferraro believes.</p>

17 (Pages 62 to 65)

EXHIBIT AH

TO

**DECLARATION OF DANIEL R.
FERRI IN SUPPORT OF
PLAINTIFF’S OPPOSITION TO
VIZIO’S MOTION FOR
ATTORNEYS’ FEES AND
EXPERT WITNESS FEES
PURSUANT TO 35 U.S.C. § 285, 28
U.S.C. § 1927, AND THE COURT’S
INHERENT POWER**

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13 IN THE UNITED STATES DISTRICT COURT
14 FOR THE CENTRAL DISTRICT OF CALIFORNIA
15 WESTERN DIVISION

15 OPLUS TECHNOLOGIES, LTD.,

16 Plaintiff,

17 v.

18 SEARS HOLDINGS CORPORATION
19 and VIZIO, INC.,

20 Defendants.

Case No. CV12-5707 MRP (E)

*Assigned to the Honorable Mariana R.
Pfaelzer*

**EXPERT REPORT OF J. CARL
COOPER**

1 **I. INTRODUCTION**

2 1. My name is J. Carl Cooper. I have been hired by the Plaintiff's
3 lawyers in this case as a technical consultant and expert regarding the validity of
4 U.S. Patents Nos. 7,271,840 (the "'840 patent") and 6,239,842 (the "'842 patent").
5 Specifically, I have been asked to review and respond to the Expert Report of Dr.
6 Sheila S. Hemami ("Dr. Hemami") Regarding the Invalidity of U.S. Patent Nos.
7 6,239,842 and 7,271,840 (the "Hemami Invalidity Report").

8 2. A summary of my background and experience is provided in my
9 Curriculum Vitae, including a list of all publications which I have authored in the
10 past 10 years and a complete listing of the trials and depositions in which I have
11 testified in the last four years is attached as Exhibit A.

12 3. I am being compensated at a rate of \$390 per hour in this matter.

13 4. Having reviewed the Hemami Invalidity Report, it is my opinion that
14 each of the asserted claims of the '840 and '842 patents discussed therein are not
15 invalid.

16 5. The materials I considered in forming my opinions are those
17 documents and websites referenced throughout the body of this report and those
18 materials listed in Exhibit B. Among other materials, I have expressly considered
19 the entirety of the Hemami Invalidity Report including all exhibits. If called to
20 testify at a hearing or a trial in this case, I may use demonstrative exhibits as a
21 summary of or as support for my opinions. I will disclose any such demonstrative
22

1 exhibits in advance of the hearing or trial in accordance with the Court's
2 procedures.

3 **II. OVERVIEW OF QUALIFICATIONS**

4 6. I am an electrical engineer with vast experience in the area of video
5 signal processing. I graduated from Oklahoma State University with a BS in
6 Electrical Engineering in 1972. My field of study included analog and digital
7 electronics including circuit design, signal processing and communications theory.
8 My education had a particular emphasis on television technology and included
9 many hundreds of hours of study, operation and maintenance of television
10 equipment in OSUETV, the University TV facility, as well as the design and
11 construction oversight and initial training and operation of the Stillwater ETV
12 production and distribution facility.

13 7. I have worked for over 40 years in various aspects of the television
14 industry including operation, design and installation of television studios and
15 equipment as well as design of various television audio and video signal
16 processing equipment. I am thoroughly familiar with video signal processing
17 technology including film and video cameras, film to video telecine transfer, 3:2
18 pulldown techniques, interlaced and progressive video signals, interlaced to
19 progressive video conversion and video display devices in various standard and
20 high definition standards.

21 8. I am the founder of Pixel Instruments Corporation, and a co founder
22 of PixView Corporation, both of which designed broadcast television equipment.
23 My design experience includes frame synchronizer and video noise reducer
24

1 equipment circuitry such as used in the Pixel Instruments VS5200 and PixView
2 VRR Video Recorder, and including circuitry which incorporates 3:2 pulldown and
3 interlaced to progressive (i.e. deinterlacing) processing.

4 9. I am a named inventor on over 75 US and foreign patents, most of
5 which deal with audio and video signal processing circuitry and methods for use in
6 the television industry. My patents include a family of patents related to film to
7 video transfer devices (telecines). Many of my patents have been licensed to
8 various professional and consumer television product manufacturers throughout
9 the world including most of those manufacturers which produce well known
10 professional broadcasting and consumer television devices. Notably, I am the
11 inventor on U.S. Patent No. 6,529,637 relied upon by Dr. Sheila Hemami in her
12 expert report on invalidity.

13 10. I have many years of experience with, and I am highly knowledgeable
14 of, both the theoretical background and real world operation of the above
15 mentioned devices which are utilized in the television industry. In addition I have
16 witnessed first-hand the development and evolution of both the professional
17 and the consumer television industry over the past four plus decades.

18 11. I am a US Registered Patent Agent and I have prepared, filed and
19 prosecuted dozens of US patent applications which deal with audio and video
20 signal processing devices and methods including many applications for my own
21 audio and video signal processing inventions.

22 12. I have served as an expert witness in over 40 technology related
23 matters, including patent infringement cases in which I have provided declarations,

1 expert reports, deposition and/or trial testimony. My expert testimony has
2 included that related to analog and digital circuitry, television technology, sound
3 and image capture, recording, storage and display devices, audio and video signal
4 processing, US Patent Office operation and procedures, patent law, claim
5 interpretation and construction, validity, infringement, damages, reasonable royalty
6 and willfulness among other topics.

7 13. I am currently employed as the General Manager of Technology
8 Licensing Corporation, which is a privately held intellectual property licensing
9 company involved in the commercialization of audio and video signal processing
10 technology.


11 14. In arriving at my opinions as set forth below I have relied on my
12 education, my years of experience in patent matters and working in the relevant
13 field of art, and I have considered the documents set forth in Exhibit B.

14 15 **II. LEVEL OF ORDINARY SKILL IN THE ART**

16 15. In my opinion the relevant field of the patents-in-suit is is deinterlacer
17 circuitry for converting standard definition interlaced video (e.g. NTSC) to
18 progressive scanned video (e.g. HDTV). I agree with Dr. Hemami's description of
19 the level of ordinary skill in the art, as provided in paragraph 38 of her expert
20 report. I am a person of at least ordinary skill in the art.

16. The following is an overview of the relevant technology and the claims claimed in the '840 and '842 Patents provided by Michael Holmes in Expert Report and Declaration. I agree with this overview and incorporate it as my own with some minor revisions.

1. De-interlacing



One complete frame using progressive scanning

-6-

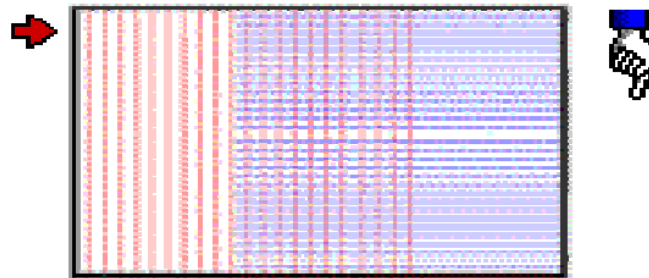
19. The evolution of HDTV screens, many digital broadcast standards, as well as Blu-ray discs and some downloadable videos from the Internet, has resulted in a shift toward “progressive” frames instead of “interlaced.” In fact, both plasma and LCD panels require a progressive video signal¹. Thus, any form of interlaced signal must be converted before it can be sent to the display panel. In a progressive video frame, the raster scan fills in all the lines of the image in order, not skipping over the even or odd rows, and then repeats the entire scan in the next frame. A

¹ The operation of flat panel plasma and LCD televisions is quite complicated and varies somewhat from one type of panel to the next. This description is greatly simplified for ease of understanding.

“1080p” display, for example, displays a new 1920 by 1080 pixel frame 24 to 60 times a second. That is, a frame or complete picture for that screen includes 1920 pixels in width, and 1080 vertical rows of pixels. A “720p” display, by comparison, displays a new 1280 by 720 frame at 24 to 60 frames per second:

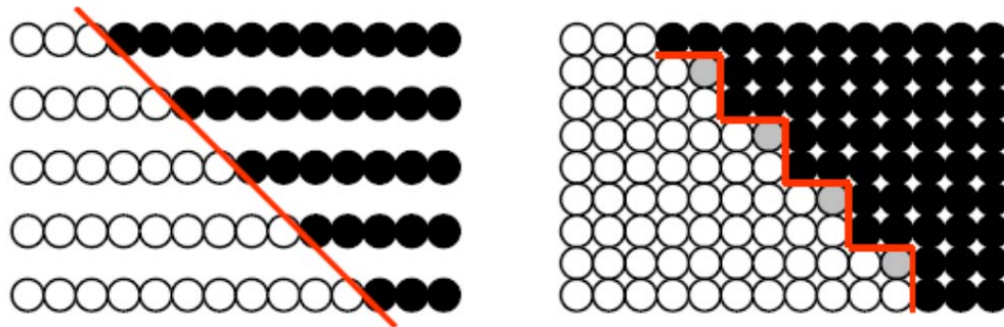
Resolution

Horizontal	Vertical
Vertical Lines	Horizontal Lines
Screen Width	Top to Bottom

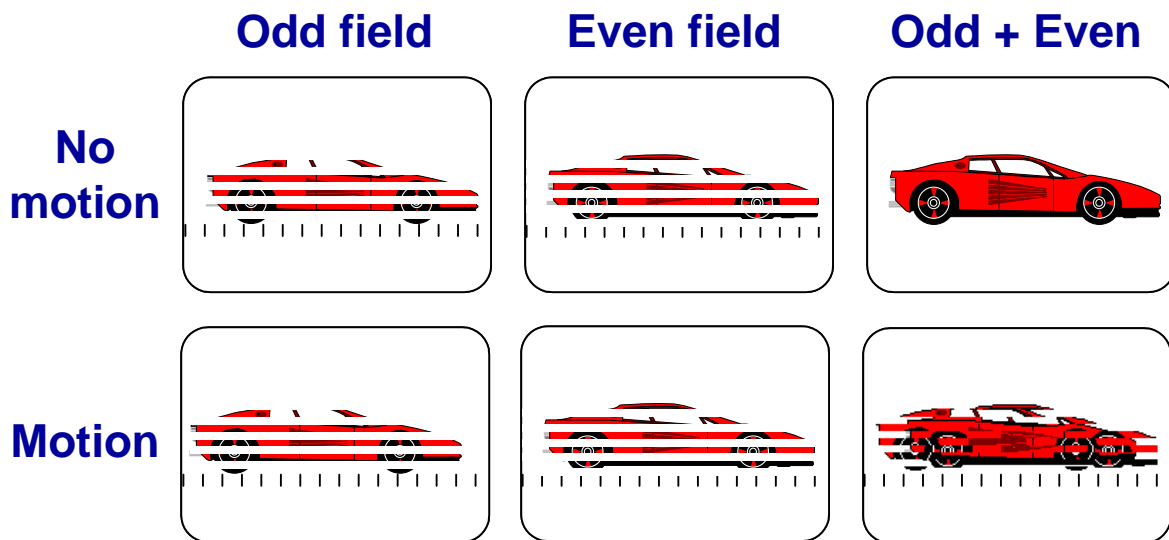


Vertical Set by Standard:
(480 .. 720 .. 1080)
Horizontal Variable

20. De-interlacing involves the process of converting an interlaced format video signal into a progressive scan video signal. One problem, however, is in accounting for motion in the image. That is, one cannot simply always delay a field for insertion and combination with its complimentary field, e.g., simply always doubling the lines in a spatial field will cause errors (“jaggies”) or a staircase in the edges of moving objects, as shown in the example below:

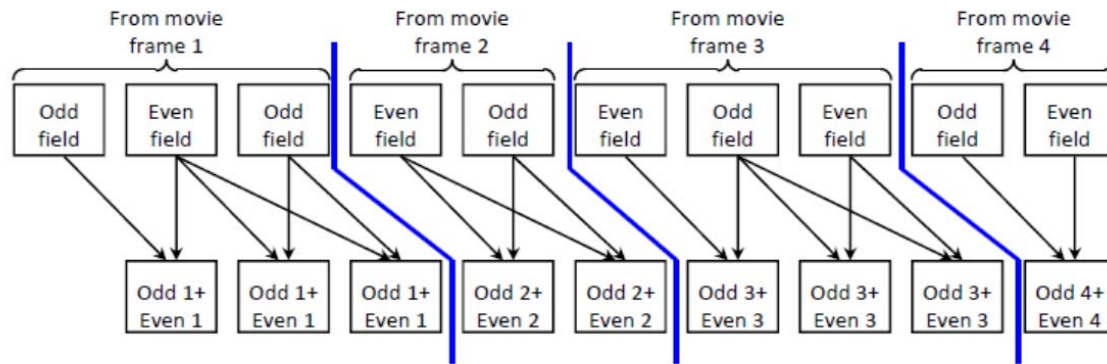


21. By contrast, simply always combining odd and even lines causes “feathering” artifacts due to time differences between odd and even scan lines, as shown in the example image below:



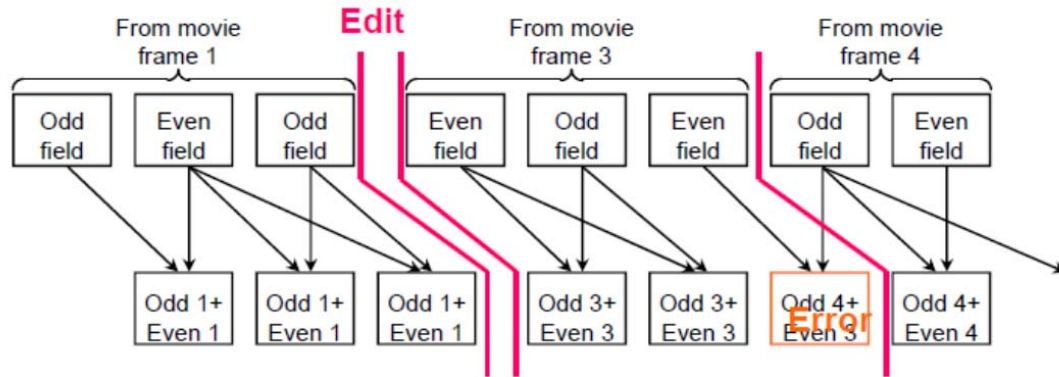
22. A further problem arises in terms of the variations of the sources of the images. Put another way, not every video source will be shot in the same format (whether interlaced or progressive) as the native resolution of the television, and many sources (e.g., movies) were shot originally for big screen film. As a result, such sources may not even have the same frame rate (i.e., the same number of pictures per second) as that used in television displays.

23. To convert such sources for television display, a film-to-video process is used to convert the film source to a desired interlaced video format. Part of this process includes converting the number of frames per second from the film standard (i.e., 24 frames per second) into the NTSC standard (i.e. 30 frames per second with each frame consisting of 2 fields giving 60 fields per second). This process is shown by example below:



Specifically, one movie frame is mapped into 3 video fields, the next frame into 2 fields, then the next frame into 3 fields, then 2 fields, etc.; this is referred to as “3:2 Pull Down.”

24. In practice, no editing process is perfect resulting in a need to detect and compensate for bad editing in the conversion from film to video. As shown in the example below, the editing process might have used the incorrect cadence or sequencing for a given set of images in the conversion process:



25. With these problems as context, the solutions provided by the ‘842 and ‘840 patents may be better understood.

2. The ‘842 Patent

26. The ‘842 patent is directed to de-interlacing. In the context of a video system, a de-interlacer may be involved in the editing process prior to broadcast or distribution (the so-called “front end”) or as in the present case, de-interlacing may be integral to the display device (or “back end”) such as a television.

27. As set forth in its claims, the ‘842 patent addresses feathering artifacts, jaggies and other de-interlacing errors as summarized above by a method of de-interlacing interlaced video signals using a mixed mode spatial and temporal approximation techniques. (‘842 patent 3:44-46). Specifically, the ‘842 patent employs logical operations from a variety of techniques including the use of averages of known values of spatial pixels, averages of known values of temporal pixels, and other processes as defined in the claims. These techniques enable a better assignment for filling in “missing” or virtual pixel values in the process of generating a progressive image for display.

3. The '840 Patent

28. The '840 Patent is directed to entropy processing. ('840 Patent, 1:15-18.) Entropy is defined in the '840 patent as a degree or extent of randomness or disorder. In application, a typical method involves processing the kinds of entropy resulting from editing errors, synchronization errors (such as the cadence errors discussed above) and the like.

29. The '840 Patent describes synchronization errors interjected into the video signals during the front end editing process. More specifically, in order to output an interlaced signal, the front end processing can interject errors into the front end's output interlaced video signal, such as in the film to video conversion process referenced above. The back end stage can correct the editing errors in the video signal when preparing the data for display.

30. The '840 Patent discloses a technique for error correction using entropy processing. This entropy process is used to identify the origin of the input video signals and to correct these editing errors. ('840 Patent, 4:56-60). In particular, since television stations are increasingly broadcasting various mixes of video image signals acquired from a variety of video sources (e.g., interlaced video, non-interlaced or progressive video, non-interlaced Hollywood movie film, and non-interlaced computer graphics), the '840 patent meets a need for the real time identification of the original mode or type of source of a digital video image signal, in order to better identify and account for editing errors (such as cadence errors), thus better converting the broadcast digital video image signals into the display format of the television or similar display device ('840 Patent, 4:33-52).

IV. RELEVANT LEGAL STANDARDS

31. I am not an attorney and do not offer opinions of law. I am aware of, and have been informed of, principles of law relevant to patent invalidity. I have also been informed of the Court's claim construction rulings in this case.

A. Patent Invalidity

32. I understand that the claims of an issued U.S. Patent are presumed valid and that it is the party challenging the validity of a claim which bears the burden of proving it is invalid by clear and convincing evidence. I understand that the validity of each patent claim is to be considered separately.

33. I understand that prior art references, and the questions of whether patent claims are enabled, definite, and satisfy the written description requirement are to be analyzed from a perspective of a person of ordinary skill in the art as of the effective filing date of the application for the patent. I understand that, in order to assess the level of ordinary skill in the art to which the patents-in-suit pertain, I may consider the types of problems encountered in the field of the invention, the prior solutions to those problems found in prior art references, the sophistication of the technology, and the level of education and experience of those who are active in the field.

34. I understand that in evaluating questions of prior art invalidity, enablement, indefinites, and compliance with the written description requirement, I must apply the Court's claim construction rulings.

B. Anticipation

35. I understand that anticipation requires the presence in a single prior art disclosure of all elements of a claimed invention arranged as in the claim. I understand that claims cannot be treated as mere catalogs of separate parts, in disregard of the part-to-part relationships set forth in the claims and that give the claims their meaning. I understand that unless a prior art references discloses within the four corners of the document not only all of the limitations claimed, but also all of the limitations arranged or combined in the same way as recited in the claim, it cannot be said to prove prior invention of the thing claimed, and, thus, cannot anticipate.

36. I understand that a prior art reference can disclose the elements of a claim expressly or inherently. I understand that anticipation by inherent disclosure is appropriate only when the reference discloses prior art that must necessarily include the unstated limitation. When I speak of disclosure in respect to what is asserted to be disclosed in Dr. Hemami's opinions or disclosed in a reference I am referring to both express and inherent disclosure.

C. Obviousness

37. I understand that a patent claim is obvious, and thus invalid, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. I understand that the following factual inquiries are

relevant to obviousness: 1) the scope and content of the prior art; 2) the differences between the prior art and the claims at issue; 3) the level of ordinary skill in the art; and 3) any relevant secondary considerations such as, the commercial success of products covered by the claim, a long felt need for a solution to the problem facing the inventors, the attempt and failure of others to solve the problem solved by the claimed invention, copying of the claimed invention by others, unexpectedly superior results that the claimed invention achieved over the prior art, the praise of others in the field for the claimed invention, and the acceptability of licenses to the patent because of the merits of the claimed invention.

38. I understand that an evaluation of obviousness may take into account the inferences and creative steps that a person of ordinary skill in the art would have employed in reviewing the prior art at the time of the invention.

39. I understand that a claim is not proved obvious merely by demonstrating that each of the elements was independently known in the prior art. I understand, therefore, that a determination of obviousness should consider whether a reason existed at the time of the invention that would have prompted a person of ordinary skill in the art in the relevant field to combine the known elements in a way that the claimed invention does.

D. The Written Description Requirement

40. I understand that a patent must contain a written description of the product or method claimed in the patent. I understand that to comply with the written description requirement, the written description included within a patent

1 must contain sufficient information to convey to a person of ordinary skill in the
2 art that the patentee had possession of the claimed invention at the time of original
3 disclosure. I understand that the written description requirement does not require
4 the applicant to exactly describe the subject matter claimed, but only allow a
5 person of ordinary skill in the art to recognize that the patentee invented what is
6 claimed.

7 **E. The Enablement Requirement**

8 41. I understand that a patent must disclose sufficient information to
9 enable or teach persons of ordinary skill in the field of invention, at the time the
10 patent application was filed, to make and use the full scope of the claimed
11 invention without undue experimentation. I understand that factors to be
12 considered in determining whether a disclosure would require undue
13 experimentation include:

- 14
- The quantity of experimentation necessary
 - 15 • The amount of direction or guidance presented
 - The presence or absence of working examples
 - 16 • The nature of the invention
 - The state of the prior art
 - 17 • The relative skill of those in the art
 - The predictability of unpredictability of the art
 - 18 • The breadth of the claims

19 **F. Indefiniteness**

20 42. I understand that patent claims must be definite; that is, that patent
21 claims must particularly point out and distinctly claim that which the applicant
22 regards as his invention. I understand that the definiteness requirement does not
23

1 compel absolute clarity. I understand that only claims not amenable to construction
2 or insolubly ambiguous are indefinite.

3 **V. GENERAL COMMENTS**

4 43. I understand that discovery in this case is not yet complete. As such, I
5 reserve the right to supplement this report to reflect any information that should
6 come to my attention.

7 44. In general, Dr. Hemami's report and exhibits 2-11 are unnecessarily
8 unclear. Specifically, Dr. Hemami's discussion of the prior art avoids clear
9 identifications of where the limitations of the asserted claims are specifically
10 identified in the prior art references. Dr. Hemami often just provides a list of
11 excerpts from a reference without any explanation of why these excerpts satisfy a
12 particular limitation of the asserted claims.

13 45. In general, Dr. Hemami does not disclose any reason why one of
14 ordinary skill in the art would combine different prior art processes for
15 deinterlacing. The prior art references cited by Dr. Hemami in regards to the '842
16 patent each disclose particular methods for deinterlacing. One of ordinary skill in
17 the art would not "mix and match" these processes. For example, a reference that
18 discloses video noise reduction would not normally be looked to by one of
19 ordinary skill in the art to be combined with another reference that performs a type
20 of deinterlacing. A reference which teaches operation with frames, whether from a
21 progressive video signal or from an interlaced video signal stored in a frame
22
23
24

1 memory would not be looked to by one of ordinary skill in the art to be operated
2 with interlaced fields replacing the frames.

3 46. As used in the context of the '842 Patent, the term "the Markush
4 group" refers to the recital in claims 7 and 14 of "values selected from the group
5 consisting of averages of [said] known values of [said] spatial pixels, averages of
6 said known values of [said] temporal pixels, standard deviations of said known
7 values of said spatial pixels, standard deviations of said known values of said
8 temporal pixels, minimums of said standard deviations of said known values of
9 said spatial pixels, absolute values of differences between said averages of said
10 known values of said temporal pixels and said known values of said spatial pixels,
11 said known values of said spatial pixels, and a plurality of constants."

12 **VI. ANALYSIS OF THE '842 PATENT – ANTICIPATION AND 13 OBVIOUSNESS**

14 **A. Simonetti et al., "A Deinterlacer for IQTV Receivers and 15 Multimedia Applications" ("Simonetti")**

16 47. It is my opinion, that claims 7-9 and 14-15 of the '842 Patent are not
17 invalid as anticipated by Simonetti. Simonetti does not disclose all of the required
18 limitations of the asserted claims.

19 48. Simonetti does not disclose at least the following element of claims 7
20 and 14: "evaluating logical operations of linear combinations of values selected
21 from the group consisting of averages of [said] known values of [said] spatial
22 pixels, averages of said known values of [said] temporal pixels, standard deviations
23 of said known values of said spatial pixels, standard deviations of said known
24

1 values of said temporal pixels, minimums of said standard deviations of said
2 known values of said spatial pixels, absolute values of differences between said
3 averages of said known values of said temporal pixels and said known values of
4 said spatial pixels, said known values of said spatial pixels, and a plurality of
5 constants, said logical operations selected from the group consisting of greater
6 than, greater than or equal to , less than, less than or equal to, ‘and’, ‘or’, and
7 ‘xor’.” Note that the element calls for evaluating logical operations of linear
8 combinations of values. That is, more than one logical operation of linear
9 combinations of values selected from the group is required.

10 49. The equation disclosed by Simonetti on page 234 (VIZIO_0000035)
11 discloses two linear combinations,

$$12 \quad |V-W| \text{ and } |(V+W)/2 - (B+E)/2|$$

13 where V & W are temporal pixels and B & E are spatial pixels.

14 50. The first of these linear combinations $|V-W|$ is not an average, or
15 standard deviation and does not comprise values selected only from the Markush
16 group recited in claims 7 and 14. Specifically it does not comprise values
17 consisting of ones of: averages of known values of spatial pixels (it is not an
18 average and does not use spatial pixels), averages of said known values of
19 temporal pixels (it is not an average), standard deviations of said known values of
20 said spatial pixels (it is not a standard deviation and does not use spatial pixels),
21 standard deviations of said known values of said temporal pixels (it is not a
22 standard deviation), minimums of said standard deviations of said known values of
23

1 said spatial pixels (it is not a minimum or standard deviation), absolute values of
2 differences between said averages of said known values of said temporal pixels
3 and said known values of said spatial pixels (it is not an average), said known
4 values of said spatial pixels (it does not use spatial pixels), and a plurality of
5 constants (it does not use a plurality of constants), which would be necessary to
6 provide the claimed “evaluating logical operations of linear combinations of
7 values”.

8 51. $|V - W|$ is the absolute value of a difference between the values of
9 temporal pixels. Neither the values of temporal pixels, nor the absolute value of the
10 difference between the values of temporal pixels, is a member of the Markush
11 group. Thus, the disclosure of the interpolation process on page 234 of Simonetti is
12 not a disclosure of evaluating logical operations of linear combinations in which
13 the values are selected from the Markush group.

14 52. The equation disclosed on p. 235 of Simonetti, $(|B - E| < h_2)$ and
15 $(|A - D| < h_2)$, is likewise not a disclosure of the evaluation of logical operations
16 of linear combinations of values selected from the Markush group. Both of the
17 linear combinations disclosed therein include a value which is the absolute value of
18 the difference between spatial pixels. Specifically, A, B, D, and E, all represent
19 spatial pixels. It must be noted that the absolute value of the difference between
20 spatial pixels, is by definition, a particular value in its own right. The absolute
21 value of the difference between the values of two spatial pixels is not necessarily
22 equivalent to the difference between those two pixels. The absolute value of the
23 difference between two spatial pixels is not one of the members of the Markush

1 group. Thus, the aforementioned equation disclosed on p. 235 of Simonetti is not a
2 disclosure of evaluating logical operations of linear combinations of values
3 selected from the Markush group of claims 7 and 14.

4 53. The disclosure on p. 235 of Simonetti of $(B+C+D+E)/4$ is not relevant
5 to the asserted claims. It is used to calculate the inclination of a border, not for
6 “deciding upon assignment of values to missing spatial pixels according to results
7 of said logical operations,” as required by claims 7 and 14.

8 54. The disclosures on p. 235-36 of Simonetti of:

- 9
- 10 • $X=(C+P+D+L)/4$
 - 11 • $X=(L+P)/2$
 - 12 • $X=(L+M+N+P)/4$
 - 13 • $X=(M+N)/2$

14 are irrelevant because none of these equations involve the logical operators recited
15 in claims 7 or 14.

16 55. The disclosure on p. 236 of Simonetti of: $|F - Q| + |Q - S| < h2 <$
17 $|N-P| + |P-D|$ is irrelevant because it includes as values, the absolute values of
18 the differences between spatial pixels. As explained above, such values are not part
19 of the Markush group.

20 56. The disclosure on p. 236 of Simonetti of $\frac{B+2x+E}{4}$ is irrelevant because
21 it does not include any of the logical operators recited in claims 7 or 14, and
22 includes the missing pixel itself as a value, which is not a member of the Markush
23 group.

1 57. Therefore, Simonetti does not disclose evaluating logical operations
2 of linear combinations of values, where the values are selected from the Markush
3 group recited in claims 7 and 14.

4 58. Because claims 8 and 9 are dependent on claim 7, they are likewise
5 not anticipated by Simonetti.

6 59. Because claim 15 is dependent on claim 14, it is likewise not
7 anticipated by Simonetti.

8 **B. Markandey et al., “Motion Adaptive Deinterlacer for DMD**
9 **(Digital Micromirror Device) Based Digital Television”**
10 **(“Markandey”)**

11 60. It is my opinion that claims 7-9 and 14-15 of the ‘842 Patent are not
12 invalid as anticipated by Markandey. Markandey does not disclose all of the
13 required limitations of the asserted claims.

14 61. Markandey does not disclose at least the following element of claims
15 7 and 14: “evaluating logical operations of linear combinations of values selected
16 from the group consisting of averages of [said] known values of [said] spatial
17 pixels, averages of said known values of [said] temporal pixels, standard deviations
18 of said known values of said spatial pixels, standard deviations of said known
19 values of said temporal pixels, minimums of said standard deviations of said
20 known values of said spatial pixels, absolute values of differences between said
21 averages of said known values of said temporal pixels and said known values of
22 said spatial pixels, said known values of said spatial pixels, and a plurality of
23 constants, said logical operations selected from the group consisting of greater
24

1 than, greater than or equal to , less than, less than or equal to, ‘and’, ‘or’, and
2 ‘xor’.”

3 62. Markandey discloses an interpolation process that involves the
4 following equation: $Y = kW + (1-k)Z$. “k” refers to a motion signal. “Z,” according
5 to Dr. Hemami, refers to the value of a temporal pixel. This equation therefore is
6 not a linear combinations of values selected from the Markush group. Specifically,
7 the Markush group is not met solely by “motion signals” or the value of a single
8 temporal pixel.

9
10 63. Dr. Hemami points to Markandey’s statement “After finding each of
11 the absolute difference values, $|A-E|$, $(|A-E|+|B-F|)/2$, $|B-E|$, $(|C-E|+|B-D|)/2$, and
12 $|A-F|$, the range of these differences is calculated” as if it is relevant. Contrary to
13 Dr. Hemami’s suggestion, however, Markandey does not disclose the evaluation of
14 logical operators to calculate the range of the absolute difference values. Moreover,
15 these values include the absolute values of the differences between spatial pixels.
16 As explained above, such absolute values are not part of the Markush group of
17 claims 7 and 14.

18 64. Further, contrary to Dr. Hemami’s suggestion, there is no indication
19 that the comparison of the “range” to the “threshold constant” disclosed in
20 Markandey involves linear combinations of the values selected from the Markush
21 group. Notably, the referenced “range” is not one of the values within the Markush
22 group.
23
24

65. Finally, the calculation disclosed in Markandey involving “absolute difference values, $|A-E|$, $(|A-E|+|B-F|)/2$, $|B-E|$, $(|C-E|+|B-D|)/2$, and $|A-F|$ ” is not done for the purposes determining the value of a missing pixel. Thus, it is irrelevant to claims 7 and 14 which require: “deciding upon assignment of said values to said missing spatial pixels according to results of said logical operations.”

66. For these reasons Markandey does not anticipate claims 7 and 14.

67. Because claims 8 and 9 are dependent on claim 7, they are likewise not anticipated by Markandey

68. Because claim 15 is dependent on claim 14, it is likewise not anticipated by Markandey.

C. Rabii, U.S. Patent No. 5,081,532, “Adaptive Progressive Scan Converter” (“Rabii”)

69. It is my opinion that claims 7-9 and 14-15 of the ‘842 Patent are not invalid as anticipated by Rabii. Rabii does not disclose all of the required limitations of the asserted claims.

70. First, the portions of Rabii cited by Dr. Hemami are directed towards calculating “motion factors,” not the values of missing spatial pixels. Second, Rabii does not disclose the detailed operation of the motion detector 29, and as Dr. Hemami points out, Rabii states at Col. 4:61-65. “Motion detector 29 supplies a plurality of motion factors K1, K2 and K3 for controlling 3D interpolator 33 based upon logical comparisons of the signals at junctions A, A' and A" and the appropriate one of the previous field motion coefficients stored in storage device 31.” There is no mention of any linear combinations or logical operations. Thus

1 those cited portions of Rabii are all largely irrelevant to claims 7 and 14 which
2 require “deciding upon assignment of said values to said missing spatial pixels
3 according to results of said logical operations.”

4 71. Moreover, Rabii does not disclose the following element of claims 7
5 and 14: “evaluating logical operations of linear combinations of values selected
6 from the group consisting of averages of [said] known values of [said] spatial
7 pixels, averages of said known values of [said] temporal pixels, standard deviations
8 of said known values of said spatial pixels, standard deviations of said known
9 values of said temporal pixels, minimums of said standard deviations of said
10 known values of said spatial pixels, absolute values of differences between said
11 averages of said known values of said temporal pixels and said known values of
12 said spatial pixels, said known values of said spatial pixels, and a plurality of
13 constants, said logical operations selected from the group consisting of greater
14 than, greater than or equal to , less than, less than or equal to, ‘and’, ‘or’, and
15 ‘xor’”

16 72. There is no indication in Rabii that the disclosed 3D interpolation
17 process utilizes any of the logical operators of claims 7 and 14. In fact, at Col.
18 7:24-34, where Rabii explains the process of the 3D interpolator, it is clear that
19 none of the logical operators of claims 7 and 14 are used in determining the output
20 of the 3D interpolator.

21 73. The above cited disclosure in Rabii is irrelevant to the asserted claims:
22 “Motion detector 29 supplies a plurality of motion factors K1, K2, and K3 for
23 controlling 3D interpolator based upon logical comparisons of the signals at
24

1 junctions A, A', and A'' and the appropriate one of the previous filed motion
2 coefficients stored in storage device 31." Such logical comparisons do not involve
3 linear combinations of values of the Markush group. A and A' are from one field
4 and A'' is a temporally different field. Thus, even if the "signals at junction A, A',
5 and A''" were comprised of pixel values from these fields, there is no teaching of
6 any linear combination comprised thereof which would include values from the
7 Markush group.

8 74. The subsequent operations of adaptive peaking and noise coring are
9 performed on the progressive scanned video signal which is output from the
10 deinterlacer. "An adaptive peaking and noise coring circuit is included. A spatial
11 array of three lines of pixels, both real and interpolated, is developed and a
12 horizontal, a vertical and two diagonal gradients between pair of pixels in the array
13 are calculated. " (Abstract). Figures 5 and 6A show the absolute values (90, 92, 94,
14 96) of differences (82, 84, 86, 88) of four sets of the 8 outside pixels in the spatial
15 array which are utilized. These combinations are not part of the claimed Markush
16 group. Thus the peaking and noise coring circuitry utilizes an array of pixels to
17 calculate gradients between pairs of pixels but there are no gradients included in
18 the claimed Markush group.

19 75. It is thus my opinion that Rabii does not anticipate claims 7 and 14 of
20 the '842 patent.

21 76. Because claims 8 and 9 are dependent on claim 7, they are likewise not
22 anticipated by Rabii.

1 77. Because claim 15 is dependent on claim 14, it is likewise not
2 anticipated by Rabii.

3 **D. Markandey et al., U.S. Patent No. 5,748,250, “Video Display**
4 **System with Digital De-interlacing” (“Markandey ‘250”)**

5 78. It is my opinion that claims 7-9 and 14-15 of the ‘842 Patent are not
6 invalid as anticipated by Markandey ‘250. Markandey ‘250 does not disclose all of
7 the required limitations of the asserted claims.

8 79. Markandey ‘250 does not disclose at least the following element of
9 claims 7 and 14: “evaluating logical operations of linear combinations of values
10 selected from the group consisting of averages of [said] known values of [said]
11 spatial pixels, averages of said known values of [said] temporal pixels, standard
12 deviations of said known values of said spatial pixels, standard deviations of said
13 known values of said temporal pixels, minimums of said standard deviations of
14 said known values of said spatial pixels, absolute values of differences between
15 said averages of said known values of said temporal pixels and said known values
16 of said spatial pixels, said known values of said spatial pixels, and a plurality of
17 constants, said logical operations selected from the group consisting of greater
18 than, greater than or equal to, less than, less than or equal to, ‘and’, ‘or’, and ‘xor’”

19 80. The equation cited by Dr. Hemami from Figure 10 and column 4 of
20 Markandey ‘250 has no bearing on the validity of claims 7 and 14. “The motion
21 detector 31a calculates a motion detection signal in accordance with the method of
22 FIG. 4.” (Col. 7:48-50.) This equation relies on values A, B, and C. As shown in
23 Figure 4, A, B, and C (which are referred to as A’, B’ and C’ in Figure 10) refer to

1 differences between pixels (the differences labeled A', B' & C' in Figure 10) in the
2 temporal fields. These are the differences which are utilized by motion detector
3 31a to provide the motion detection signal MD which the selector 31e uses to
4 select either the line average 31b or median 31c. Such differences A', B' & C' are
5 not part of the Markush group. Nor, it may be noted, is the average of the
6 differences between the values of a spatial pixel and a temporal pixel part of the
7 Markush group. Moreover, this equation does not contain any logical operators
8 present in claims 7 and 14. Additionally, this equation is not directed to assigning
9 values to missing pixels, but is directed to determining a motion detect value. See
10 Col. 5, ll. 4-5.

11 81. Dr. Hemami equates the purported linear combination with a "motion
12 detection signal MD." Dr. Hemami further states that this "is then compared to a
13 threshold constant to determine if motion is present. The comparison necessarily
14 involves one of the logical operations 'greater than,' 'greater than or equal to,'
15 'less than,' or 'less than or equal to.'" However, there is no basis for such a
16 conclusion. Dr. Hemami does not identify what the purported threshold constant is,
17 or where it is disclosed in Markandey '250. Nor does Dr. Hemami identify the
18 purported comparison. Regardless, the motion detection signal is a series of 4 bit
19 values, and there is no indication or reason to believe that these 4-bit values are
20 values from the Markush group. Thus, any comparison to a threshold constant
21 would still be irrelevant for the purposes of claims 7 and 14.

1 82. Therefore, Markandey ‘250 does not disclose evaluating logical
2 operations of linear combinations of values, where the values are selected from the
3 Markush group recited in claims 7 and 14.

4 83. It is thus my opinion that Markandey ‘250 does not anticipate claims 7
5 and 14 of the ‘842 patent.

6 84. Because claims 8 and 9 are dependent on claim 7, they are likewise
7 not anticipated by Markandey ‘250.

8 85. Because claim 15 is dependent on claim 14, it is likewise not
9 anticipated by Markandey ‘250.

10 **E. Cooper, U.S. Patent No. 6,259,637, “Spatial Scan Replication**
11 **Circuit” (“Cooper”)**

12 86. I am intimately familiar with this patent as I am the named inventor. It
13 is my opinion that claims 7-9 and 14-15 of the ‘842 Patent are not invalid as
14 anticipated by Cooper. Cooper does not disclose all of the required limitations of
15 the asserted claims.

16 87. Cooper does not disclose at least the following element of claims 7
17 and 14: “evaluating logical operations of linear combinations of values selected
18 from the group consisting of averages of [said] known values of [said] spatial
19 pixels, averages of said known values of [said] temporal pixels, standard deviations
20 of said known values of said spatial pixels, standard deviations of said known
21 values of said temporal pixels, minimums of said standard deviations of said
22 known values of said spatial pixels, absolute values of differences between said
23 averages of said known values of said temporal pixels and said known values of
24

1 said spatial pixels, said known values of said spatial pixels, and a plurality of
2 constants, said logical operations selected from the group consisting of greater
3 than, greater than or equal to, less than, less than or equal to, 'and', 'or', and
4 'xor'."

5 88. Figure 7 does not illustrate logical operations on linear combinations
6 of values selected from the Markush group. Specifically, the logical operations in
7 Figure 7 are performed on the absolute values of the difference between two spatial
8 pixels. As explained above, the absolute value of the difference between two
9 spatial pixels is not part of the Markush group. Notably, the absolute value of
10 differences between the value of spatial and temporal pixels is also not part of the
11 Markush group, although there is a Markush element dealing with the absolute
12 value of differences of averages of spatial and temporal pixels.

13 89. Dr. Hemami also points to Figure 9. Cooper states at Col. 17:41-47,
14 "FIG. 12 shows as an alternate embodiment of the video fill and D-A converter 35
15 of FIG. 10 in applications depicted by FIG. 9. The function of the preferred
16 embodiment described with respect to FIG. 12 is to generate a fill element which is
17 similar or equivalent to element X. This embodiment of FIG. 12 generates a fill
18 element, for use as element X of FIG. 7 or 9, in response to the video fill or
19 replication signal from FIG. 11." Fig. 11 shows a rank logic circuit 27 which
20 performs logical operations on the absolute values of pairs of pixels A through H
21 of Fig. 10 and shown graphically in Figs. 7 & 9. Note it is not the absolute values
22 of averages of pixels, as mentioned above. The pairs used in Fig. 11 are A-H, B-G,
23 C-F, D-E, B-E, E-G, G-D, D-B. Importantly, when the missing pixel to be created

1 is X all of the differences are taken from temporal pixels. None of the absolute
2 values of the differences are part of the Markush group.

3 90. Dr. Hemami's contention that it would have been obvious to modify
4 Cooper to perform the claimed methods is false. Cooper contemplates using the
5 absolute value of differences of pixel pairs, but this is not part of the Markush
6 group. It would not have been obvious to modify Cooper to use values from the
7 Markush group instead.

8 91. Cooper does not disclose the evaluation of logical operations of linear
9 combinations of values selected from the Markush group of claims 7 and 14.

10 92. It is thus my opinion that Cooper does not anticipate claims 7 and 14
11 of the '842 patent.

12 93. Because claims 8 and 9 are dependent on claim 7, they are likewise
13 not anticipated by Cooper.

14 94. Because claim 15 is dependent on claim 14, it is likewise not
15 anticipated by Cooper.

16 **F. Kovacevic, U.S. Patent No. 5,661,525 ("Kovacevic") in view of**
17 **Markandey or Rabii**

18 95. It is my opinion that claims 7-9 and 14-15 of the '842 Patent are not
19 invalid as anticipated by Kovacevic. Kovacevic does not disclose all of the
20 required limitations of the asserted claims.

21 96. It is additionally my opinion that claims 7-9 and 14-15 of the '842
22 Patent are not obvious over Kovacevic in view of Markandey or Rabii. As
23 discussed within this report, each of these references is missing at least one
24

1 element of the asserted independent claims. Thus, even if they were combined, the
2 asserted claims would still not be obvious over the combination. Moreover, one of
3 ordinary skill in the art would have had no reason or motivation to combine
4 Kovacevic with Markandey or Rabii or assuming arguendo they were combined to
5 supply the missing elements.

6 97. Kovacevic does not disclose at least the following element of claims 7
7 and 14: “evaluating logical operations of linear combinations of values selected
8 from the group consisting of averages of [said] known values of [said] spatial
9 pixels, averages of said known values of [said] temporal pixels, standard deviations
10 of said known values of said spatial pixels, standard deviations of said known
11 values of said temporal pixels, minimums of said standard deviations of said
12 known values of said spatial pixels, absolute values of differences between said
13 averages of said known values of said temporal pixels and said known values of
14 said spatial pixels, said known values of said spatial pixels, and a plurality of
15 constants, said logical operations selected from the group consisting of greater
16 than, greater than or equal to , less than, less than or equal to, ‘and’, ‘or’, and
17 ‘xor’”

18 98. Dr. Hemami does not attempt to identify any linear combination of
19 values selected from the members of Markush group of claims 7 and 14 as
20 disclosed within Kovacevic. At paragraph 143, Dr. Hemami states that Kovacevic
21 “uses linear combinations of spatial and temporal pixels in several interpolation
22 equations and several error equations that are used to calculate weights for
23 interpolations.” But Dr. Hemami does not contend that Kovacevic uses linear
24

1 combinations of any values which are a member of the Markush group of claims 7
2 and 14.

3 99. Equation (2), at Col 7:5 of Kovacevic is irrelevant to claims 7 and 14.
4 It does not use any logical operations present in claims 7 and 14.

5 100. Equation (4) at Col. 7:45 of Kovacevic is irrelevant to claims 7 and
6 14. It does not use any logical operations present in claims 7 and 14.

7 101. Equation (9) at Col. 8:61 of Kovacevic is irrelevant to claims 7 and
8 14. It does not use any logical operations present in claims 7 and 14.

9 102. Equations (21) at Col. 11:20 of Kovacevic is irrelevant to claims 7
10 and 14. It does not use any logical operations present in claims 7 and 14.

11 103. Equations (3), (5), (10), (16), and (17) at Cols. 7:35, 7:54, 9:1, and
12 10:56-61 of Kovacevic are irrelevant to claims 7 and 14. They do not use any
13 logical operations present in claims 7 and 14. Additionally, these equations use
14 values outside of the Markush group of claims 7 and 14. Additionally, these
15 equations are directed to computing an error not assigning a missing value to a
16 pixel.

17 104. Kovacevic does not disclose, expressly or inherently, the use of
18 logical operations in connection with linear combinations provided by error
19 equations 3, 5, 10, 16 and 17. Kovacevic discloses using the results of these error
20 equations to determine weighting factors. However, this is not done through the
21 use of logical operations, as is clear from the disclosure at Col. 8:9-16.

22 105. Dr. Hemami's references to Kovacevic disclosing a "continuing
23 decision" technique at paragraph 144 is confusing, as Kovacevic never uses these
24

1 words. Hemami does not explain what she means by a “continuing decision”
2 technique.

3 106. There is no evident basis for combining Kovacevic with Rabii or
4 Markandey. Dr. Hemami does not explain why one of ordinary skill in the art
5 would be motivated to replace Kovacevic’s determination of weighting “with a
6 discrete decision achieved by evaluating logical operations” of Markandey, or what
7 the benefit of such a replacement would accomplish. Nor does Dr. Hemami
8 provide any basis for her conclusion in paragraph 144 that “the use of discrete
9 decisions via logical operations was a known substitute for continuous decisions
10 via weighting. . . .” Nor does Dr. Hemami explain what aspects of Kovacevik and
11 Markandey/Rabii she is purportedly combining. There is nothing with the prior art
12 cited by Dr. Hemami that suggests or teaches combining the process disclosed in
13 Kovacevic with any separate process designed to improve the accuracy in
14 determining missing pixel values.

15 107. It is not true, as Dr. Hemami suggests in paragraph 145, that the ‘842
16 Patent distinguishes Kovacevic on the grounds that it discloses the use of more
17 than one temporal field.

18 108. I do not believe that any of the asserted claims of the ‘842 Patent are
19 anticipated by Kovacevic or rendered obvious by Kovacevic in combination with
20 Rabii and Markandey.

G. Campbell, U.S. Patent No. 6,133,957 (“Campbell”) and Cooper, U.S. Patent No. 6,529,637

109. It is my opinion that claims 7-9 and 14-15 of the ‘842 Patent are not invalid as anticipated by Campbell. Campbell does not disclose all of the required limitations of the asserted claims.

110. It is additionally my opinion that claims 7-9 and 14-15 of the ‘842 Patent are not obvious over Campbell in view of Cooper. As discussed within this report, each of these references is missing at least one element of the asserted independent claims. Thus, even if they were combined, the asserted claims would still not be obvious. Moreover, one of ordinary skill in the art would have had no reason or motivation to combine Campbell with Cooper or assuming arguendo they were combined to supply the missing elements.

111. Specifically, Campbell does not disclose at least the following elements of claim 7 and 14: “evaluating logical operations of linear combinations of values selected from the group consisting of averages of [said] known values of [said] spatial pixels, averages of said known values of [said] temporal pixels, standard deviations of said known values of said spatial pixels, standard deviations of said known values of said temporal pixels, minimums of said standard deviations of said known values of said spatial pixels, absolute values of differences between said averages of said known values of said temporal pixels and said known values of said spatial pixels, said known values of said spatial pixels, and a plurality of constants, said logical operations selected from the group

1 consisting of greater than, greater than or equal to , less than, less than or equal to,
2 ‘and’, ‘or’, and ‘xor’”

3 112. Dr. Hemami does not explicitly state anywhere in paragraphs 147 -
4 154 which of the members of the Markush group of claim 7 are purportedly found
5 in Campbell.

6 113. Campbell’s disclosure of the measurement of the variance along line
7 311, V311, (see Col. 3:53 – Col. 4:1) is irrelevant to claims 7 and 14. It does not
8 use any logical operations present in claims 7 and 14. Additionally, the absolute
9 value of the difference between two spatial pixels is not a value of the Markush
10 group, as explained above. For the same reasons, Campbell’s use of equation 2(a)
11 disclosure of the measurement of variance along line 312 (Col. 4:4-25), and
12 Cooper’s use of absolute values of pixel differences to rank pixels (e.g. Fig. 11) are
13 irrelevant.

14 114. Additionally, equation 2(c) (Col. 4:l. 22) is irrelevant to claims 7 and
15 14 because the products of normalized pixel values are not part of the Markush
16 group.

17 115. Campbell does not disclose expressly or inherently the evaluation of
18 logical operations of linear combinations of values which are present in claims 7
19 and 14.

20 116. Campbell discloses selecting between multiple measurement signals
21 representing minimums in a first quadrant. (See Col. 6, ll. 45-60). Campbell
22 discloses selecting the minimum with the smallest acute angle in the first quadrant.
23 Variances are not part of the Markush group of claims 7 and 14.

1 117. Campbell thus does not anticipate claims 7 and 14.

2 118. Because claims 8 and 9 are dependent on claim 7, they are likewise
3 not anticipated by Campbell. Because Campbell does not anticipate claim 14, it
4 does not anticipate claim 15.

5 119. Because Campbell does not disclose the foregoing element of claim
6 14, Campbell does not render claims 14 or 15 obvious when combined with
7 Cooper.

8 120. Moreover, there would be no reason for one of skill in the art to
9 combine Cooper with Campbell. As is clear from Campbell's discussion of the
10 Background Art, Campbell was well aware of the use of temporal pixels in
11 methods of deinterlacing. The use of temporal pixels is thus referred to as a part of
12 an alternative, and presumably inferior, interlacing process. Campbell's invention,
13 however, does not use temporal pixels. Thus, Campbell teaches away from its
14 combination with any piece of prior art that uses temporal pixels for deinterlacing.

15 121. Cooper teaches: "In an image replication circuit, the improvement of
16 replicating a given element at a certain location with the most similar of
17 surrounding sets of image elements." Cooper, at Abstract. Campbell teaches: "In a
18 television image, for example, an interpolation direction is derived for each
19 additional pixel from a weighted combination of a vertical direction and a best-
20 choice diagonal direction. If a potential interpolation condition cannot be
21 determined with a high level of confidence, the weighted combination favors the
22 vertical direction." Campbell, at Abstract. Thus, Campbell teaches away from
23 using most similar surrounding sets of image elements.

1 122. It is thus my opinion that one of ordinary skill in the art would not
2 have been motivated to combine Campbell with Cooper to arrive at a different
3 deinterlacing method than disclosed in those two patents.

4 **VII. '842 PATENT – WRITTEN DESCRIPTION AND ENABLEMENT**

5 123. It is my opinion that Dr. Hemami has failed to provide credible
6 evidence, let alone clear and convincing evidence that any asserted claim of the
7 '842 Patent fails to comply with the written description and enablement
8 requirements. To the contrary, Dr. Hemami uses faulty arguments based on an
9 incorrect understanding of the written description and enablement requirements.

10 124. I understand that to comply with the written description requirement,
11 the written description included within a patent must contain sufficient information
12 to convey to a person of ordinary skill in the art that the patentee had possession of
13 the claimed invention at the time of original disclosure. I understand that the
14 written description requirement does not require the applicant to exactly describe
15 the subject matter claimed, but only allow a person of ordinary skill in the art to
16 recognize that the patentee invented what is claimed. And in particular reference to
17 Dr. Hemami's assertions, neither is the written description required to contain a
18 description of every possible device which can be covered by the claims.

19 125. I understand that to comply with the enablement requirement the
20 specification of a patent must teach those skilled in the art how to make and use the
21 full scope of the claimed invention without undue experimentation. I understand
22
23
24

1 that factors to be considered in determining whether a disclosure would require
2 undue experimentation include:

- 3 • The quantity of experimentation necessary
- 4 • The amount of direction or guidance presented
- 5 • The presence or absence of working examples
- 6 • The nature of the invention
- 7 • The state of the prior art
- 8 • The relative skill of those in the art
- 9 • The predictability of unpredictability of the art
- 10 • The breadth of the claims

11 126. One of ordinary skill in the art, at the time of the filing of the
12 application that led to the '842 Patent, would understand that the patentee invented
13 a method of de-interlacing video signals that encompassed the "full gamut" of
14 linear combinations claimed in the "evaluating" step of claims 7 and 14.

15 127. One of ordinary skill in the art would not have understood from the
16 written description contained within the '842 Patent that the invention of that
17 patent was limited to a single, specific set of linear combinations and logical
18 operations.

19 128. The '842 Patent expressly discloses "evaluat[ing] logical operations of
20 linear combinations of averages, standard deviations, minimum standard
21 deviations, absolute values of differences between average values of pixels and
22 known values of pixels, and known values of pixels, with previously defined
23 threshold constants, and pixel luminance levels." Fig. 5/2, Step 10(a). This
24 statement is not qualified or limited. Although a specific set of linear combinations
is recited in step 10(b) of Figure 5/2, it would not be reasonable to understand the

1 invention to be so limited. Step 10(a) of Figure 5/2 would not be so broadly stated,
2 and broadly encompassing, if the invention was limited to that specific set of linear
3 combinations described in step 10(b).

4 129. The statement within step 10(a) of Figure 5/2 cannot simply be
5 ignored. One of ordinary skill in the art would understand that the specific set of
6 linear combinations recited in step 10(b) is simply a preferred embodiment, and
7 does not limit the scope of the invention.

8 130. The fact that certain linear combinations using values listed in the
9 ‘842 Patent written description might not lead to optimal deinterlacing is not
10 determinative as to how one of ordinary skill in the art would understand the scope
11 of the invention disclosed in the ‘842 Patent written description. One of skill in the
12 art would understand that there are numerous possible linear combinations using
13 the recited values that could lead to accurate deinterlacing, and that to encompass
14 all of them, a disclosure would also necessarily have to encompass certain linear
15 combinations that would not be likely to lead to accurate deinterlacing.

16 131. One of ordinary skill in the art would not have expected to have seen
17 algorithms specific to all possible subsets of linear combinations formed from the
18 values in the Markush groups within claims 7 and 14, nor is such detail required in
19 the written description. One of ordinary skill would have understood this to be
20 unnecessary in light of the clear expression in step 10(a) of Figure 5/2 that the
21 invention encompassed the evaluation of logical operations of “averages, standard
22 deviations, minimum standard deviations, absolute values of differences between
23
24

1 average values of pixels and known values of pixels, and known values of pixels,
2 with previously defined threshold constants, and pixel luminance levels.”

3 132. The asserted claims satisfy the enablement requirement. One of skill
4 in the art would be able to practice the full scope of the claimed invention without
5 undue experimentation. In fact, practice of the invention would require no
6 experimentation at all for one of skill in the art.

7 133. One of ordinary skill in the art at the time of the claimed invention
8 would have known how to evaluate logical operations of linear combinations
9 formed from the values within the Markush groups of claims 7 and 14.

10 134. The ‘842 Patent provides at step 10(b) of Figure 5/2, a preferred
11 embodiment of the use of logical operations and linear combinations. This, alone,
12 would enable one of ordinary skill in the art to practice the claimed invention. The
13 fact that the claims are broader than this preferred embodiment is irrelevant,
14 because one of ordinary skill in the art would simply use it as a template, for the
15 substitution of any linear combinations and logical operators disclosed therein.

16 135. One of ordinary skill in the art would not have to perform undue
17 experimentation to practice any process encompassed by the asserted claims. It
18 would simply be a matter of substituting different linear combinations and logical
19 operators as deemed necessary or desirable. The fact that there are a large number
20 of possible combinations is irrelevant for the purposes of enablement, because it
21 does not add any difficulty to one attempting to implement the claimed invention.

22 136. The fact that the asserted claims encompass certain embodiments that
23 would be less useful than others is irrelevant for the purposes of enablement. One
24

1 of ordinary skill would know to avoid any combination that was likely to be
2 useless or inoperative.

3 137. Because the claims specify utilizing temporal fields the claims
4 describe a method for motion adaptive de-interlacing. The fact that an embodiment
5 of the claimed invention may choose to use pixels from one field or another (e.g.
6 because they fit the scene as determined by the claimed operation) and not to use
7 pixels from another field which does not fit the scene (again as determined by the
8 claimed operation) means that pixels that don't fit the scene because the scene has
9 moved will have a low probability of being selected. In this way the claimed
10 methods are motion adaptive.

11 **VIII. VALIDITY OF THE '840 PATENT – DEFINITENESS**

12 138. In my opinion, none of the asserted claims of the '840 patent are
13 invalid due to indefiniteness.

14 139. Dr. Hemami's assertion that 'each asserted claim of the '840 Patent is
15 indefinite because of its recitation of individual pixel entropy calculations" is
16 without basis. A person of skill in the art would know what individual pixel
17 entropy calculations are. In fact, pixel entropy was well known years before the
18 priority date of the '840 Patent. For example, see U.S. Patent No. 5,568,568 which
19 discusses pixel entropy values. (Ex. E.) This patent was filed on January 23, 1993
20 and issued October 22, 1996. The abstract of this patent states:

21 A pattern recognition system is disclosed that uses a predetermined
22 minimal number of comparison pixels in a pattern recognition process
23 for input image recognition. For each pixel within a prescribed frame,
24 a probability of the existence of a reference pattern is calculated by a

1 probability calculation means. **These probability values are used by**
2 **a entropy calculation means to calculate pixel entropy values.**
3 Pixels with a high entropy value are then extracted and designated as
4 comparison pixels for the pattern recognition operation. Comparison
5 means compares these comparison pixels with corresponding pixels of
6 an image pattern, and determines which of the reference patterns has a
7 highest probability of being the image pattern.

(Emphasis added.) In fact, the '568 Patent includes an equation for calculating
pixel entropy at Col. 5:40.

140. More modern references to pixel entropy also exist and can easily be
found through a simply Google search. For instance, see:

http://enblend.sourceforge.net/enfuse.doc/enfuse_4.0.0.shtml/Local-Entropy-Weighting.shtml (Ex. C)

<http://www.geomatrix.lt/node/11> (Ex. D)

141. Dr. Hemami's comment that entropy "is nonsensical as to individual
pixels" did not reference a time frame and ignores that pixel entropy is well known
to one of ordinary skill in the art. For example, as aptly described at
<http://www.geomatrix.lt/node/11>:

As a mathematical function, entropy is used to measure the level of
"disorder" within a certain sample of values - practically speaking, a
certain entropy value is assigned to a pixel by measuring entropy of a
sample of pixel values present in a given "window" around that pixel.
Smooth and visually "uniform" parts of the image thus have low or
very low entropy (no matter what are the real pixel values - "color"),
while areas wit[h] higher diversity of pixel values, especially with
sudden shifts in image color - gain higher entropy values."

(Emphasis added.) (Ex. D.) Thus entropy as to an individual pixel may be simply
explained as a measure of how similar a pixel is to its surrounding pixels. This
understanding of pixel entropy is consistent with the specification of the '840
Patent. Specifically, the '840 Patent, at Col. 8:29-35, states: "This fundamental

1 aspect of ‘pixel entropy’, for characterizing the degree or extent of randomness or
2 disorder, and fluctuation thereof, of a single pixel based on its surrounding local
3 neighborhood, of a streaming digital video image signal, enables one to efficiently
4 determine appropriate further processing of the pixels of the streaming digital
5 video image signal.” The ‘840 Patent thus describes a pixel’s entropy as based on
6 the pixel’s surrounding local neighborhood. For example, one of ordinary skill in
7 the art would understand that in a 3X3 pixel neighborhood the center pixel is
8 assigned the entropy value of the 8 pixels in its neighborhood. If the 8 pixels are all
9 smooth and visually uniform parts of the image the center pixel would be assigned
10 the low entropy value for that neighborhood.

11 142. This Court has already recognized that “pixel entropy” has a clear
12 meaning. Specifically, in the Court’s Order Denying Vizio, Inc.’s Motion for
13 Summary Judgment of Invalidity of U.S. Patents Nos. 6,239,842 and 7,271,840
14 Under 35 U.S.C. §§ 101 and 112, ¶2: “A pixel’s entropy captures how much
15 activity is happening surrounding it.” P. 6

16 143. Even if the concept of pixel entropy was not well known in the art at
17 the time of the application that led to the ‘840 Patent, which it was, the ‘840
18 Patent’s description of “pixel entropy” is sufficient to describe to a person of
19 ordinary skill in the art how to compute pixel entropy: “This fundamental aspect of
20 ‘pixel entropy’, for characterizing the degree or extent of randomness or disorder,
21 and fluctuation thereof, of a single pixel based on its surrounding local
22 neighborhood, of a streaming digital video image signal, enables one to efficiently

1 determine appropriate further processing of the pixels of the streaming digital
2 video image signal.” (Emphasis added.) ‘840 Patent, Col. 8:29-35

3 144. Dr. Hemami refers to the statement of Richard Ferraro that “[t]he
4 determination of the entropy of a virtual pixel is actually the determination of the
5 entropy for a population of pixels involving a plurality of local pixels in the same
6 field or tracking a pixel or pixels through previous or future fields.” Mr. Ferraro’s
7 statement is accurate and consistent with the discussion of pixel entropy in the ‘840
8 Patent.

9 145. Dr. Hemami misinterprets element (c) of claim 56. That element
10 recites exactly what is disclosed at column 8 in the ‘840 Patent, i.e., characterizing
11 the degree of randomness of a single pixel based on its surrounding local
12 neighborhood.

13 146. The ‘840 Patent teaches that a pixel’s entropy is taken from the
14 neighborhood surrounding it. This can be true for a real pixel or a virtual pixel,
15 even before the virtual pixel’s real value is determined. This is because both such
16 pixels have surrounding neighborhoods of real pixels from which the pixel’s
17 entropies can be determined.

18 **IX. VALIDITY OF THE ‘840 PATENT – SUFFICIENT WRITTEN**
19 **DESCRIPTION AND ENABLEMENT**

20 147. The ‘840 Patent clearly states in the Summary of the Invention that
21 “[t]he method of the present invention is based upon determining the degree or
22 extent of randomness or disorder, herein referred to as the entropy, and
23 determining the fluctuation thereof, herein, referred to as the entropy fluctuation,

1 *of each pixel* relative to inter-local neighborhoods and intra-local neighborhoods
2 of pluralities of selected pixels originating from the streaming digital video image
3 signal.” Col. 5:19-26. The disclosure of the ‘840 Patent would thus, at the time it
4 was filed, clearly express to one of ordinary skill in the art that the invention
5 included the calculation of individual pixel entropies. See also, e.g., Col. 11:62 –
6 Col. 12: 9, Col. 14:55-61. In fact, the disclosure of the ‘840 Patent is filled with
7 references to determining entropy values for individual pixels.

8 148. Dr. Hemami demands an explanation in the ‘840 Patent of the
9 difference between individual pixel entropies and “the conventional understanding
10 of entropy as it would be calculated on a population of pixels.” Dr. Hemami’s
11 demand is unreasonable and also misleading. First, the concept of pixel entropy
12 was well known in the art at the time of the filing of the ‘840 Patent. See U.S.
13 Patent 5,568,568, which was filed on January 23, 1992 and issued on October 22,
14 1996. The ‘568 Patent states in its abstract:

15 A pattern recognition system is disclosed that uses a predetermined minimal
16 number of comparison pixels in a pattern recognition process for input
17 image recognition. For each pixel within a prescribed frame, a probability of
18 the existence of a reference pattern is calculated by a probability calculation
19 means. **These probability values are used by a entropy calculation**
20 **means to calculate pixel entropy values.** Pixels with a high entropy value
are then extracted and designated as comparison pixels for the pattern
recognition operation. Comparison means compares these comparison pixels
with corresponding pixels of an image pattern, and determines which of the
reference patterns has a highest probability of being the image pattern.

21 (Emphasis added.) The preferred embodiment in the ‘568 Patent even
22 discloses an equation for calculating pixel entropy at Col. 5:40. Second, even if the
23 concept of individual pixel entropy was not clearly understood in the art, the ‘840

1 Patent adequately describes it in a way that would easily be understood by one of
2 skill in the art. For example, the summary of the invention is clear that it is the
3 entropy of a pixel relative local neighborhoods of other pixels. See, e.g, Col. 5:10-
4 18.

5 149. Dr. Hemami states that the ‘840 Patent does not provide any method
6 of calculating individual pixel entropies. This is completely incorrect. The ‘840
7 Patent provides a detailed explanation of how the entropy of individual pixels (e.g.,
8 virtual pixel, previous pixel, and next pixel) are calculated. This is provided
9 starting at Col. 11:52, and is referred to as “Step (c).” Specifically, sub-step (iv) of
10 Step (c) concludes with “calculating a value of the entropy of each previous pixel .
11 . . next pixel. . . and . . . virtual pixel. . .” Col. 14:55-61. This corresponds to
12 element (c) of claim 56 which states: “determining the entropy of each virtual
13 pixel, of each previous pixel, and of each next pixel. . . .” Thus, it is unclear how
14 Dr. Hemami can state that the ‘840 does not describe a method of calculating pixel
15 entropies.

16 150. At paragraphs 178-79 of her report, Dr. Hemami misinterprets the
17 claim language and Mr. Ferraro’s declaration. Using pixel distances, both spatial
18 and temporal, as weighing factors or coefficients were well known to persons of
19 ordinary skill in the art. The use of weighing arises from the fact that pixels which
20 are closer in time or space to a given pixel have a higher probability of coming
21 from a similar point on an image than do pixels that are farther apart from the
22 given pixel because images which are using in television programs frequently have
23 slow-moving large areas of similar color intensity, hue, and brightness. Such
24

1 weighing was well known in the art as of the filing of the '840 Patent. For
2 example, U.S. Patent 6,141,461 issued October 31, 2000 (Ex. F) teaches using
3 distance weighting of pixels at Col. 2:12-17, "According to a first embodiment,
4 while calculating the means of the intensities of at least pairs of pixels on the
5 opposite sides of the pixel under examination, the pixel intensity is weighted
6 according to their distance from the pixel under examination, each intensity value
7 being multiplied by a factor decreasing at the distance increases." In other words,
8 as a simplified example, a weighted distance in a determination of pixel entropy
9 can be understood as the difference in pixel values divided by the distance between
10 those pixels. So, a pixel that is farther away is more likely to have a lesser
11 weighted distance than a pixel that is closer. Distance weighted entropy
12 measurement provides a better understanding of how a central pixel compares to
13 the immediately surrounding pixels, and thus more important pixels, as opposed to
14 how it compares to the surrounding pixels that are farther away.

15 151. At paragraph 180, Dr. Hemami states that the '840 Patent does not
16 describe a process that yields claimed pixel entropy values. This is incorrect. The
17 calculation of claimed pixel entropy values is disclosed at Cols. 14:17 – 15:62.
18 Notably, the '840 Patent states: "Completion of Step (c) results in obtaining values
19 of the entropy and determining relative relationships among the values of the
20 entropy of each previous pixel . . . each next pixel . . . and each virtual pixel." Col.
21 15:55-61. The calculation of values recited in Columns 14 and 15 allows for a
22 decision of claim 56 "not to use values selected from the group consisting of value
23 of a said previous pixel in said previous field, and value of a next pixel in said next
24

1 field, for assigning a real value to said virtual pixel in said current field.” Dr.
2 Hemami does not contend otherwise.

3 152. Dr. Hemami contends that entropy value is not calculated for pixels,
4 but that the ‘840 Patent provides a result which is the relative relationship between
5 individual pixel entropies. In order for the relative relationship between individual
6 pixel entropies to be calculated, pixel entropy values must also have been
7 calculated. Whether these pixel entropy values are individually provided as an
8 output is irrelevant to the invention of the ‘840 Patent.

9 153. Dr. Hemami demands numerical examples of the calculations of
10 individual pixel entropies. But numerical examples are not necessary for one of
11 ordinary skill in the art to understand the claimed process and to practice the
12 invention without undue experimentation. Dr. Hemami contends that the ‘840
13 Patent provides no teaching as to what considerations are involved in selecting
14 neighborhoods and subset of neighborhoods of pixels. This is not true. See Col.
15 11:6-42, Col 12:32-67, Col. 13:1-64. Dr. Hemami states that the specification
16 states that “K is a positive integer strictly greater than 1.” This is not true, as K is
17 defined as a positive integer greater than 0. See Col. 11:33-34.

18 154. In paragraphs 186-195, Dr. Hemami effectively contends that every
19 possible permutation and combination of the various embodiment of the claimed
20 invention should be described in detail in the ’840 Patent. To do so would be
21 unnecessary. The disclosure of the invention is sufficient to let one of ordinary
22 skill in the art understand that the patentee was in possession of full scope of the
23 invention. Additionally, the ‘840 provides a very thorough explanation of how the
24

1 method is performed, that could apply to any embodiment of the claims which the
2 person of ordinary skill would desire.

3 155. Dr. Hemami states that the patent provides no explanation as to how
4 inter-local neighborhood parameters could be calculated other than by using the
5 respective neighborhoods of a set of three pixels . . . each of which has the same
6 spatial coordinates. This is not true because one of ordinary skill in the art would
7 understand that patent's explanation of how inter-local neighborhood parameters
8 could be applied to pixels with different spatial coordinates. This is similarly true
9 with respect to the adjustment of "pixel entropy counters."

11 **X. '840 PATENT – NON-OBVIOUSNESS**

12 **A. Campbell in view of Olsson et al., U.S. Patent No. 6,535,254,** 13 **"Method and Device for Noise Reduction ("Olsson")**

14 156. It is my opinion that claims 56-59 and 62 of the '840 Patent are not
15 invalid as anticipated by either Campbell or Olsson. Neither Campbell nor Olsson
16 disclose all of the required limitations of the asserted claims.

17 157. It is additionally my opinion that claims 56-59 and 62 of the '840
18 Patent are not obvious over Campbell in view of Olsson. As discussed within this
19 report, each of these references is missing at least one element of the asserted
20 independent claims. Thus, even if they were combined, the asserted claims would
21 still not be obvious. Moreover, one of ordinary skill in the art would have had no
22 reason or motivation to combine Olsson with Campbell or assuming arguendo the
23 combination is made, no reason or motivation to provide the missing elements.

1 158. There would have been no motivation for one of ordinary skill in the
2 art to combine Campbell with Olsson. Campbell is primarily concerned with the
3 spatial activity of determining which angle should be used, from horizontal to
4 vertical, for the interpolation of the missing pixel. See Campbell at Col. 1:62 – Col.
5 2:14. Olsson, on the other hand, is primarily concerned with temporal noise
6 reduction by operating on temporal frames. See Olsson at Col. 2:16-22, 41-52. The
7 inventions of Campbell and Olsson are quite disparate in their desired operation
8 and also the manner in which their outcomes are achieved. One of ordinary skill
9 would not be motivated to look at either one to supplement a shortcoming of the
10 other, let alone to combine the two.

11 159. Even if one of ordinary skill were to look to combine Olsson and
12 Campbell, Dr. Hemami has not explained how that combination would be
13 implemented or how that combination would result in the method of the asserted
14 claims of the ‘840 Patent.

15 160. None of the portions quoted by Dr. Hemami of Campbell or Olsson
16 disclose the step of receiving and characterizing a streaming digital video image
17 input signal during a pre-determined time interval.

18 161. Campbell does not disclose the element of claim 56, “assigning and
19 characterizing a local neighborhood of neighboring pixels to each input image
20 pixel of the streaming digital video image input signal, in a temporal interlaced
21 sequence of three consecutive fields in a global input grid of pixels included in the
22 streaming digital video input image signal, said three consecutive fields being a
23 previous field, a next field, and a current field.” Specifically, the invention of
24

1 Campbell does not concern sequences of fields, but only concerns a single field.
2 See Fig. 1 of Campbell and the discussion related thereto.

3 162. Olsson also does not disclose the element of claim 56, “assigning and
4 characterizing a local neighborhood of neighboring pixels to each input image
5 pixel of the streaming digital video image input signal, in a temporal interlaced
6 sequence of three consecutive fields in a global input grid of pixels included in the
7 streaming digital video input image signal, said three consecutive fields being a
8 previous field, a next field, and a current field.” Specifically, the invention of
9 Olsson concerns frames, not fields. See Col. 2:ll. 15-18; Col. 4:ll. 39-65. Olsson
10 does not even use the word “field.” Frames are fundamentally different than fields.
11 Notably, in the context of de-interlacing, frames do not have missing pixels.

12 163. At paragraph 212, Dr. Hemami points to local neighborhoods of
13 frames in both Campbell and Olsson. However, for Campbell the referenced frame
14 is the output frame. For Olsson, the neighborhood is in an input frame which has
15 no temporal interlaced signal.

16 164. Campbell does not disclose the element of claim 56, “determining the
17 entropy of each virtual pixel, of each previous pixel, and of each next pixel, in said
18 temporal interlaced sequence of said three consecutive fields, relative to said
19 assigned characterized local neighborhoods of said neighboring pixels.”
20 Specifically, Campbell does not disclose the evaluation of multiple temporal fields.
21 Campbell only uses one field. Thus, Campbell does not determine values for pixels
22 in any temporal fields (e.g. “previous” or “next”) besides the current field.

1 165. Olsson does not disclose the element of claim 56, “determining the
2 entropy of each virtual pixel, of each previous pixel, and of each next pixel, in said
3 temporal interlaced sequence of said three consecutive fields, relative to said
4 assigned characterized local neighborhoods of said neighboring pixels.” Olsson
5 does not evaluate three consecutive fields. Olsson only discloses the evaluation of
6 frames. Because a sequence of frames does not have “virtual pixels,” Olsson is not
7 concerned with virtual pixels or determining the entropy of virtual pixels.
8 Moreover, Olsson’s disclosure of “scene change analysis” is irrelevant to a
9 determination of pixel entropy because a determination of “scene change” is not a
10 determination of pixel entropy. Moreover, the manner in which Olsson detects
11 “scene changes,” cited by Dr. Hemami (paragraph 206), is not a manner of
12 determining pixel entropy.

13 166. Neither Campbell nor Olsson disclose element (c)(i) of claim 56.
14 Specifically, Campbell only concerns a single field, and thus cannot disclose the
15 calculation of values of pixel inter-local neighborhood parameters for each
16 previous pixel in said previous field and for each next pixel in said next field.
17 Olsson only discloses frames, not fields, and thus does not disclose a calculation of
18 values of pixel inter-local neighborhood parameters for pixels in fields.

19 167. At paragraph 212, Dr. Hemami cites to multiple portions of Campbell
20 and Olsson in support of her conclusion that these references disclose elements
21 (c)(i) – (c)(iv) of claim 56, but never explains why these portions actually disclose
22 these elements. There is thus no showing of how Campbell and Olsson purportedly
23 disclose these elements.

1 168. Dr. Hemami admits that Campbell and Olsson do not disclose the
2 limitations of claim 57. She only asserts that such limitations would have been
3 obvious in light of Campbell and Olsson. There is no basis for her statement.
4 Specifically, there is no indication that the inventions of Campbell or Olsson would
5 have worked as intended with film originated video. The invention of Campbell
6 operates with interlaced video, but only operates on single fields. The invention of
7 Olsson operates with progressive frame video and there is no suggestion that the
8 invention of Olsson can operate with interlaced video, let alone interlaced video
9 which originated from film.

10 169. At paragraph 210, Dr. Hemami cites Kahn as relevant to claim 57, but
11 does not explain why it is relevant. Specifically, Dr. Hemami does not provide any
12 explanation of why Kahn would be combined with Olsson or Campbell. In fact,
13 there is no reason to believe that one of ordinary skill would be motivated to
14 combine Kahn with Olsson or Campbell. Campbell's invention is intended to
15 create a video frame from a video field by creating new values for the missing
16 pixels. This invention is needed in live video sequences because of motion which
17 occurs between the times of the temporally scanned fields in the original frame.
18 Kahn, on the other hand, looks to identify fields which originated in the same
19 progressive video frame and thus have no motion. See Kahn, Abstract. This is
20 possible because the original progressive video frame scans both the even and odd
21 scan lines in the same sequence. This type of scanning frequently takes place when
22 progressive video frames are created from film. In other words, once Khan
23 identifies two fields of the same progressively scanned frame there is no need for

1 the invention of Campbell, which is to generate missing pixels, because they have
2 already been identified and the two fields can be simply combined. Accordingly,
3 the use of Kahn's invention in combination with Campbell's invention would
4 never be considered by one of ordinary skill in the art. The combination of Olsson
5 and Kahn makes no sense because the operation of Kahn would simply return the
6 original progressive frame which Olsson started with.

7 170. Olsson cannot disclose the limitations of claim 58 because Olsson
8 does not disclose "fields." Thus Olsson cannot perform any operation relating to a
9 "virtual pixel within a missing horizontal line of [a] current field," a "pixel located
10 in [a] previous field," or a "pixel located in [a] next field."

11 171. Campbell cannot disclose the limitation of claim 59 because Campbell
12 only concerns a current spatial field, and does not disclose operations involving
13 previous and next fields.

14 172. Olsson and Campbell do not disclose the limitations of claim 62 for
15 the reasons stated above. Specifically, Olsson does not disclose fields and
16 Campbell does not disclose operations on temporal (previous and next) fields.

17 **B. Kokaram, U.S. Patent No. 5,598,226 ("Kokaram")**
18 **in view of Campbell**

19 173. It is my opinion that claims 56-59 and 62 of the '840 Patent are not
20 invalid as anticipated by Kokaram. Kokaram does not disclose all of the required
21 limitations of the asserted claims.

22 174. It is additionally my opinion that claims 56-59 and 62 of the '840
23 Patent are not obvious over Kokaram in view of Campbell. As discussed within
24

1 this report, each of these references is missing at least one element of the asserted
2 independent claims. Thus, even if they were combined, the asserted claims would
3 still not be obvious. Moreover, one of ordinary skill in the art would have had no
4 reason or motivation to combine Kokaram with Campbell.

5 175. Kokaram also does not disclose the element of claim 56, “assigning
6 and characterizing a local neighborhood of neighboring pixels to each input image
7 pixel of the streaming digital video image input signal, in a temporal interlaced
8 sequence of three consecutive fields in a global input grid of pixels included in the
9 streaming digital video input image signal, said three consecutive fields being a
10 previous field, a next field, and a current field.” Specifically, the invention of
11 Kokaram concerns frames, not fields. See Abstract; Col. 1:5-9; Col. 2:29-38; Col.
12 4:35-58.

13 176. Kokaram does not disclose the element of claim 56, “determining the
14 entropy of each virtual pixel, of each previous pixel, and of each next pixel, in said
15 temporal interlaced sequence of said three consecutive fields, relative to said
16 assigned characterized local neighborhoods of said neighboring pixels.” Kokaram
17 does not evaluate three consecutive fields. Kokaram only discloses the evaluation
18 of frames. Because a sequence of frames does not have “virtual pixels,” Kokaram
19 is not concerned with and does not disclose virtual pixels or determining the
20 entropy of virtual pixels.

21 177. Kokaram does not disclose calculating the values of pixel inter-local
22 neighborhood parameters for a previous pixel in a previous field and a next pixel in
23 a next field. Kokaram discloses calculating a mean absolute error based on blocks

1 of pixels from the current frame and another temporal frame. See Kokaram, Col. 6:
2 24-64 This mean absolute error, however, is not used to assign any value for a
3 previous pixel in a temporal or next field. The mean absolute error is used to
4 determine a displacement vector. See Kokaram, Col. 6: 19-32. The displacement
5 vectors are assigned to pixels in the current frame, not pixels in the previous or
6 next frames. See Kokaram, Col. 5: 1-20. Thus, Kokaram does not disclose
7 calculation of displacement vectors for pixels in the previous of next frames, much
8 less pixels in previous or next fields.

9 178. Kokaram likewise does not disclose calculating a value of virtual
10 pixel intra-local neighborhood parameter. Dr. Hemami states that Kokaram
11 discloses this element through its disclosure of the creation of “an array for each
12 frame that defines whether given pixels are affected or not affected by noise or are
13 otherwise damaged.” She cites to Kokaram at Col. 8:7 – Col. 9:11. However, as is
14 clear from Kokaram, the referenced error calculation involves a process involving
15 multiple frames, and not just a single frame. See Kokaram Col. 9:5-6.

16 179. Kokaram likewise does not disclose adjusting the values of pixel
17 entropy counters for previous and next pixels. As referenced by Dr. Hemami,
18 Kokaram discloses a process which is “carried out for all the data volumes into
19 which the three frame data space has been divided until all of the pixels in the
20 current frame f have been tested.” Col. 9: 5-8. Thus, the testing, and any adjusting,
21 is only being performed for pixels in current frame f.

22 180. One of ordinary skill in the art would have no motivation to combine
23 Kokaram with Campbell. First, Dr. Hemami’s suggestion that Kokaram’s
24

1 disclosure of a VCR and 9mm cine (film) suggests that Kokaram would be useful
2 to interlaced video signals is pure speculation. Kokaram discloses the use of
3 frames, not fields. It would take considerable operation to make it suitable for
4 operating with fields.

5 **C. Kahn, U.S. Patent No. 6,563,550 (“Kahn”)**
6 **in view of Campbell**

7 181. It is my opinion that claims 56-59 and 62 of the ‘840 Patent are not
8 invalid as anticipated by Kahn. Kahn does not disclose all of the required
9 limitations of the asserted claims.

10 182. It is additionally my opinion that claims 56-59 and 62 of the ‘840
11 Patent are not obvious over Kahn in view of Campbell. As discussed within this
12 report, each of these references is missing at least one element of the asserted
13 independent claims. Thus, even if they were combined, the asserted claims would
14 still not be obvious. Moreover, one of ordinary skill in the art would have had no
15 reason or motivation to combine Kahn with Campbell.

16 183. There would be no motivation for one of ordinary skill in the art to
17 combine the inventions of Kahn and Campbell. The purpose of Campbell’s
18 invention is to create a video frame from a video field by creating new values for
19 the missing pixels. The creation of the new pixel values, which in effect creates the
20 missing field, which thereby provides the video frame, is necessitated in live video
21 sequences by motion which occurs between the times of the temporally scanned
22 fields in an original frame. Kahn’s invention, on the other hand, seeks to identify
23 fields which originated in the same progressive video frame. See Kahn, Abstract

1 (“The immediately preceding and/or immediately succeeding video field is
2 determined to have been derived from a same progressive video frame as the target
3 video field if the one or more metrics are less than their respective threshold
4 values.”)

5 184. Kahn recognizes the problem of field acquisition at different times,
6 such as the type of video Campbell deals with, and points to the use of various
7 solutions for field pairing when there is no matching field identified. See Kahn, at
8 Col. 3:45-49 (“In this case, as is the case with hanging fields, other techniques such
9 as field interpolation, spatial-temporal filtering, motion adaptive, and motion
10 compensation deinterlacing are necessary to provide the complementary field for
11 pairing.”) Notably, Kahn does not mention or suggest the type of method disclosed
12 by Campbell, adaptive diagonal interpolation.

13 185. In other words, the invention of Kahn identifies two fields of the same
14 progressively scanned frame, and having done so, there is no need to generate
15 missing pixels as disclosed by Campbell because they have already been identified
16 and the two fields can simply be combined back into the original progressive
17 frame. If no matching field is found in Kahn’s invention, Kahn discloses the use of
18 field interpolation, spatial-temporal filtering, motion adaptive, and motion
19 compensation deinterlacing, but does not disclose adaptive diagonal interpolation,
20 which is the method employed by Campbell. Thus, far from suggesting
21 combination with Campbell, Kahn teaches one of ordinary skill in the art to look to
22 a wide variety of methods for determining the value of a missing pixel apart from
23

**IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION**

IP INNOVATION LLC and
TECHNOLOGY LICENSING
CORPORATION,

Plaintiffs,

V.

VIZIO, INC. (f/k/a “V, INC.)

Defendant.

)
)
) Case No. 08-cv-393
)
) Judge Sharon Johnson Coleman
)
) Magistrate Judge Susan Cox
)
)
)
)
)
)
)

DISMISSAL ORDER

Plaintiffs IP Innovation LLC and Technology Licensing Corporation (“Plaintiffs”) and Defendant VIZIO, Inc. (“VIZIO”) have agreed to a compromise.

IT IS HEREBY ORDERED:

1. This Court has jurisdiction over the subject matter of this Action and over Plaintiffs and VIZIO.
2. All claims and counterclaims made in this Civil Action by Plaintiffs against VIZIO and by VIZIO against Plaintiffs are hereby dismissed with prejudice pursuant to the agreement of the parties.
3. Plaintiffs and VIZIO shall each bear their own casts and attorneys' fees.

January 28, 2011

Date _____

Shan-Phu Coleman

Hon. Sharon Johnson Coleman
United States District Court

**UNITED STATES DISTRICT COURT
FOR THE Northern District of Illinois – CM/ECF LIVE, Ver 3.2.3
Eastern Division**

IP Innovation LLC, et al.

Plaintiff,

v.

Case No.: 1:08-cv-00393

Honorable Samuel Der-Yeghiayan

Vizio, Inc., et al.

Defendant.

NOTIFICATION OF DOCKET ENTRY

This docket entry was made by the Clerk on Thursday, November 12, 2009:

MINUTE entry before the Honorable Susan E. Cox: Status hearing held. Status hearing date of 11/20/09 at 9:30 a.m. given in open court is stricken. Status hearing set for 12/2/09 at 9:30 a.m. By 11/19/09, Vizio to provide Plaintiff with a list of model numbers sold since 2005 and sales information requested for 60 television models described in interrogatories, and additional financial information for products. By 11/20/09, parties to submit a proposed protective order to this Court's proposed order box. At the next status hearing, parties to notify the Court of a proposed settlement conference date for January 2010. Mailed notice(vkd,)

ATTENTION: This notice is being sent pursuant to Rule 77(d) of the Federal Rules of Civil Procedure or Rule 49(c) of the Federal Rules of Criminal Procedure. It was generated by CM/ECF, the automated docketing system used to maintain the civil and criminal dockets of this District. If a minute order or other document is enclosed, please refer to it for additional information.

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IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION

IP INNOVATION LLC, and TECHNOLOGY
LICENSING CORPORATION,

Plaintiffs,

vs.

VIZIO, INC. (f/k/a V, Inc.), and MICROSOFT
CORPORATION,

Defendants.

No. 1:08-cv-00393

Judge Samuel Der-Yeghiayan

JURY TRIAL DEMANDED

[REDACTED VERSION]

**DEFENDANT VIZIO, INC.'S OPPOSITION TO PLAINTIFFS' MOTION *IN LIMINE*
TO PRECLUDE VIZIO FROM OFFERING TESTIMONY OR OPINIONS
CONCERNING NON-INFRINGEMENT**

VIZIO, Inc. ("VIZIO") respectfully submits this Opposition to Plaintiffs' August 13, 2010 Motion *in Limine* to Preclude VIZIO from Offering Testimony or Opinions Concerning Non-Infringement (Dkt. 257) (the "Motion" or "Mot.").

INTRODUCTION

Plaintiffs' Motion is a thinly disguised motion for summary judgment and a transparent attempt to shift Plaintiffs' burden of proving infringement to VIZIO. The time for filing a motion for summary judgment has passed, however, and Plaintiffs filed no such motion. Plaintiffs should not be permitted to circumvent Federal Rule of Civil Procedure 56 and Local Rule 56 in an effort to dispose of VIZIO's non-infringement claims by motion *in limine*.

Not only is Plaintiffs' Motion procedurally improper, but the motion also lacks merit. Indeed, the Motion is nothing more than an attempt to distract from the gross deficiencies in *Plaintiffs'* infringement contentions, which are the subject of VIZIO's pending motion for

2. VIZIO Met its Discovery Obligations. Plaintiffs' Failure to Obtain Information Sufficient to Accuse the Third-Party Microchips of Infringement (Before or After Filing Suit) is No Fault of VIZIO's.

VIZIO met its discovery obligations and, as described below, provided Plaintiffs with the information it had about the particular microchip(s) in 175 of its televisions.

However, Plaintiffs improperly attempt to extend VIZIO's discovery obligations to forcing third party microchip suppliers (levels above VIZIO in the supply chain) to provide specifications and data sheets for each of the microchips in each VIZIO television. This information may be necessary for Plaintiffs to accuse those microchips of infringement, but the information is proprietary to the chip manufacturers and not available to VIZIO. As described in

REDACTED

Plaintiffs are well aware of the fact that the circuit-level information necessary to accuse third-party microchips of infringement is in the hands of the third-parties themselves. Indeed, Plaintiffs served a subpoena on Mediatek near the end of fact discovery but, apparently, made no effort whatsoever to enforce the subpoena. *See* Herberholz Decl. (Dkt. 199) Exh. 84. Evidently, Plaintiffs made a strategic decision not to sue or pursue information from the chip manufacturers.

B. Plaintiffs' Motion is an Attempt to Distract From Plaintiffs' Unsubstantiated and Grossly Deficient Infringement Contentions, Which Are the Subject of VIZIO's Pending Motion for Summary Judgment.

Plaintiffs argue that VIZIO somehow ignored an order of the Court and evaded its discovery obligations. Mot. at 4. This argument is false and misleading.

Plaintiffs' Motion refers to VIZIO's November 19, 2009 discovery responses, in which VIZIO identified the specific microchips contained in *nearly 150* of its televisions. *Id.*; *see*

VIZIO, Inc.'s Second Supp. Resp. to Pls.' Interrog. No. 12, dated November 19, 2009, attached hereto as Exhibit 4. However, in the Motion, Plaintiffs paste an excerpt of said responses listing 11 models of VIZIO's televisions for which the identity of the microchip was unknown to VIZIO as of November 19, 2009. Mot. at 4. Remarkably, Plaintiffs fail to tell the Court that VIZIO (1) had already identified the microchips in nearly 150 of its televisions and (2) supplemented this discovery response a few weeks later, upon learning the identity of the remaining microchips – identifying the particular microchips contained in *each* of those 11 television models and others:

REDACTED

(VIZIO, Inc.'s Third Supp. Resp. to Pls.' Interrog. No. 12, dated December 18, 2009 at 14, attached hereto as Exhibit 5.)

Plaintiffs also fail to acknowledge to the Court that Plaintiffs *themselves* promised to “supplement” their infringement contentions after VIZIO identified each of the microchips/integrated circuits in the accused products – but, in effect, never did so.

THE COURT: So then what else will need to be decided?

MR. GIBBONS: So then at that point I think the request of Vizio is when can my client –

THE COURT: Yes

MR. GIBBONS: -- supplement our claim charts. And as I told them, I expect that what they give me will fulfill our request. And then it’s a matter of looking at what they identified, what television models they have identified, what information do we have on those integrated circuits that we can then take and put into a claim chart.

(11/12/09 Hearing Transcript, at 33 ll. 5-14, attached hereto as Exhibit 6.)

However, even after VIZIO provided all of the information it had regarding the accused microchips (*i.e.*, the very information Plaintiffs said they needed), Plaintiffs *still* cannot meet their burden to prove any infringement. In truth, Plaintiffs have no information “on those integrated circuits” identified by VIZIO – as evidenced by their “supplemental” Claim Charts / Infringement Contentions. After VIZIO provided a list of the third-party microchips in nearly 150 of its televisions to Plaintiffs on November 19, 2009, Plaintiffs actually *grouped* the information in that list into “families” (e.g. **REDACTED**) and pasted the names of those families of chips into their *existing claim charts* without any analysis of the accused integrated circuits. *Compare* Pls.’ September 2, 2009 claim charts, Herberholz Decl., Exh. 76 at 56-63 *with* Pls.’ December 14, 2009 Infringement Contentions, Herberholz Decl., Exh. 78 at 10-25. Thus, Plaintiffs’ Infringement Contentions became *even more generalized*, making it even more difficult for VIZIO to understand the basis (if any) for Plaintiffs’ infringement allegations for each of these third-party microchips.

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IN THE UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION

IP INNOVATIONS LLC, et al.,	)	Docket No. 08 C 393
)	
Plaintiffs,)	
)	
v.	)	Chicago, Illinois
	)	November 12, 2009
MITSUBISHI ELECTRIC CORPORATION,	)	10:02 o'clock a.m.
et al.,)	
)	
Defendants.)	

TRANSCRIPT OF PROCEEDINGS - STATUS
BEFORE THE HONORABLE SUSAN E. COX

APPEARANCES :

For the Plaintiffs:

NIRO, SCAVONE, HALLER & NIRO, by
MR. PAUL CHRISTOPHER GIBBONS
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For Defendant Microsoft:	SIDLEY AUSTIN LLP, by MS. JAMIE L. SECORD One South Dearborn Street Chicago, Illinois 60603
--------------------------	--

For Defendant Vizio: LEVENFELD PEARLSTEIN LLC, by
MR. CHRISTOPHER SCOTT GRIESMEYER
Two North LaSalle Street
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Chicago, Illinois 60602

ALEXANDRA ROTH, CSR, RPR
Official Court Reporter
219 South Dearborn Street
Room 1224
Chicago, Illinois 60604
(312) 408-5038

NOTE: Please notify of correct speaker identification.

1 | you were first in front of me. And it seems to me pretty
2 | clear. So you know what --

3 MR. ZARIAN: But that was before the new rules, which
4 I think clearly change --

5 THE COURT: Right, but we can't --

6 MR. ZARIAN: I know. I understand, but --

7 THE COURT: -- change history midstream.

8 MR. ZARIAN: I think --

9 THE COURT: Now, new rules came in effect when? I
10 mean --

11 MR. GIBBONS: About a month ago, your Honor.

12 THE COURT: Yeah. This case has been pending, you
13 know, for -- it's an '08 case. You know, we are in '09. I'm
14 not going to retroactively -- those new rules have a date
15 certain for many things in this case which we haven't -- that
16 hasn't been the way it's done. And we're not going -- not
17 going to go back and try to graft those new rules onto existing
18 litigation as I understand those to be operating prospectively.

19 MR. ZARIAN: No, I wouldn't ask the Court in
20 (inaudible) --

21 THE COURT: I really do think that you should tell
22 them, now that -- especially now that you have this information
23 from the District Court, what -- you know, you should identify
24 your products. And I'm going to require that you do that. And
25 then you're right. You will get the same -- I will enforce

1 | their discovery obligations just as strenuously as I am trying
2 | to enforce yours. But we need to get busy.

3 MR. ZARIAN: Okay.

4 THE COURT: I can't emphasize that enough. I am not
5 going to be inclined to extend this discovery out because the
6 District Judge -- we've talked about, we've had conversations
7 about this case. And, you know, it's going to move.

8 || So everybody should know that.

9 MR. ZARIAN: Fair enough, your Honor.

10 THE COURT: Now, what do we need to do in terms of the
11 making this -- making this -- putting this in an order? I
12 guess you should meet and confer on the remaining financial
13 information.

14 MR. GIBBONS: Well, we did that Tuesday evening, your
15 Honor.

16 THE COURT: All right.

17 MR. GIBBONS: We met for about an hour.

18 THE COURT: What's the upshot?

19 MR. GIBBONS: The response that I got was that they
20 would let me know in a few days if they would ask their client
21 for that information.

22 THE COURT: Well, they're going to ask.

23 MR. ZARIAN: I am just --

24 MR. GIBBONS: I guess --

25 THE COURT: Or is.

1 MR. GIBBONS: I know the feeling, your Honor.

2 THE COURT: But you should identify. And what he's
3 requested is for you to identify those televisions that -- that
4 employ the technology. I mean, I can't exactly remember, and I
5 don't have it in front of me. But it was the chicken and egg
6 thing. You wanted him to tell you. He wants you to tell him.
7 And what I'm saying is, Judge Nolan says, and I'm going to
8 follow her, that you need to tell him. So get on it.

9 And then he's going to have to tell you or further
10 identify what his infringement position is. Right? Somebody
11 has got to go first. And you know what? It's you.

12 MR. ZARIAN: I understand.

13 THE COURT: That's what we are doing here. So how
14 soon can you do that?

15 MR. ZARIAN: Your Honor -- your Honor, we are not
16 talking about a specific interrogatory. We are beyond that now
17 apparently because there is no specific interrogatory that I
18 asked for -- for that.

19 So if the Court tells me what it's ordering me without
20 a motion and without interrogatories (inaudible) --

21 THE COURT: He had a motion.

22 MR. ZARIAN: -- I can answer.

23 THE COURT: I need a recess.

24 MR. ZARIAN: Thank you, your Honor.

25 THE COURT: And I think I want to see you guys in

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13 *Attorneys for Defendant*
14 *VIZIO, Inc.*

15 UNITED STATES DISTRICT COURT
16 CENTRAL DISTRICT OF CALIFORNIA
WESTERN DIVISION

17 OPLUS TECHNOLOGIES, LTD.,

18 Plaintiff,

19 v.

20 SEARS HOLDINGS CORPORATION;
21 VIZIO, INC.,

22 Defendants.

CASE NO.: CV12- 5707 MRP (Ex)

Hon. Judge Mariana R. Pfaelzer

**SUPPLEMENTAL DECLARATION
OF CHARLES C. KOOLE IN
SUPPORT OF DEFENDANT VIZIO,
INC.'S MOTION FOR
ATTORNEYS' FEES AND EXPERT
WITNESS FEES PURSUANT TO 35
U.S.C. § 285, 28 U.S.C. § 1927, AND
THE COURT'S INHERENT POWER**

DATE: December 9, 2013

TIME: 11:00 a.m.

PLACE: Courtroom 12

SUPPLEMENTAL DECLARATION OF CHARLES C. KOOLE

I, Charles C. Koole, declare:

1. I am an associate attorney in the law firm of Glaser Weil Fink Jacobs Howard Avchen & Shapiro LLP ("Glaser Weil"), and an attorney of record for Defendant VIZIO, Inc. ("VIZIO") in the following action in the Central District of California: *Oplus Technologies, Ltd. v. Sears Holdings Corporation, et al.*, Case No. 2:12-cv-05707-MRP (Ex) (C.D. Cal.). I make this declaration on personal knowledge, and if called as a witness, I could and would testify competently thereto.

2. Attached hereto as Exhibit AY is a true and correct copy of the article: E.B. Billers and G. de Haan, "Advanced Motion Estimation and Motion Compensated Deinterlacing," in Proc. of the Int. Workshop on HDTV, Los Angeles, USA, October 1996.

3. Attached hereto as Exhibit AZ is a true and correct copy of a webpage from MediaTek's website describing the MT5395 chip, accessed November 24, 2013.

4. Attached hereto as Exhibit BA is a true and correct copy of the search results from MediaTek's website by searching for the term "MDDi," accessed November 24, 2013.

5. Attached hereto as Exhibit BB is a true and correct copy of the description of MDDi technology on MediaTek's website, accessed November 24, 2013. Each of the chips listed as incorporating MDDi are chips that are incorporated in either DVD or Blu-ray players.

6. Oplus failed to pursue discovery from Qualcomm, Inc., the current owner of the accused HQV technology.

7. Oplus failed to pursue discovery from STMicroelectronics, Inc., the current owner of the accused Faroudja DCDi technology.

8. Attached hereto as Exhibit BC is a true and correct copy of relevant excerpts from the August 9, 2013 Deposition of J. Carl Cooper.

1 9. Attached hereto as Exhibit BD is a true and correct copy of relevant
2 excerpts of the Declaration of Dr. Sheila S. Hemami in Support of Defendant VIZIO,
3 Inc.'s Motion for Summary Judgment of Invalidity under 35 U.S.C. §§ 101 and 112
4 (Dkt. No. 101-16), which was filed on January 7, 2013.

5 10. Attached hereto as Exhibit BE is a true and correct copy of the
6 November 12, 2009 Minute Entry from the case *IP Innovation LLC, et al. v. VIZIO,*
7 *Inc., et al.*, Case No. 1:08-cv-00393 (N.D. Ill.).

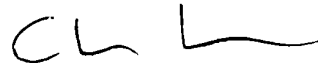
8 11. Attached hereto as Exhibit BF is a true and correct copy of relevant
9 excerpts of Defendant VIZIO, Inc.'s Second Supplemental and Amended Objections
10 and Responses to Plaintiff Oplus Technologies, Ltd.'s Amended Interrogatories (Nos.
11 1, 7, and 11), which were served on July 23, 2013.

12 12. Concurrently filed conditionally under seal as Exhibit BG are true and
13 correct copies of product specification sheets which were produced to Oplus counsel
14 on July 12, 2013.

15 13. Attached hereto as Exhibit BH is a true and correct copy of relevant
16 excerpts of the American Intellectual Property Law Association Report of the
17 Economic Survey 2013.

18 I declare under penalty of perjury under the laws of the United States that the
19 foregoing is true and correct to the best of my knowledge and belief.

20 Executed this 25th day of November 2013 in Los Angeles, California.

21
22 

23 Charles C. Koole
24
25
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MDDi™: innovative technology for progressive scan DVD players

MDDi™ technology provides a complete solution that greatly improves quality and reduces costs compared to traditional progressive scan DVD players:

Unified architecture

MDDi technology employs an innovative, patent-pending architecture that combines the MPEG decoder, format converter, and video enhancement unit, and easily shares information among them.

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MediaTek's proprietary edge processing technology eliminates the saw-tooth effect in the interlace and progressive converters, producing smooth object boundaries to create a more pleasurable viewing experience.

No compromise in Sub-title/OSD quality

MDDi's unified architecture ensures that 4:4:4 Sub-title and OSD do not need to be down-sampled before the progressive scan process.

Low system cost

The MDDi™ unified architecture eliminates the need for an external format converter and the associated frame buffer DRAM. It also reduces the PCB cost and design effort required by manufacturers.

Part#	Description
MT1389/K	DVD Player SOC
MT1389/KP	Prtable DVD Player SOC
MT1389/L	DVD Player SOC with MPEG-4 support
MT1389/LP	Portable DVD Player SOC with MPEG-4 support
MT1389/M	DVD Player SOC with HDMI™ Tx
MT1389/R	DVD Player SOC with RM/RMVB support
MT1389/S	DVD Player SOC with HDMI Tx and WMV support
MT8520	Blu-ray™ Player SoC

MT8555

Single chip Blu-ray™ disc player

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Attorneys for Plaintiff
Oplus Technologies, Ltd.

IN THE UNITED STATES DISTRICT COURT
FOR THE CENTRAL DISTRICT OF CALIFORNIA
WESTERN DIVISION

OPLUS TECHNOLOGIES, LTD.,

Plaintiff,

v.

SEARS HOLDINGS CORPORATION
and VIZIO, INC.,

Defendants.

Case No. CV12-5707 MRP (E)

*Assigned to the Honorable Mariana R.
Pfaelzer*

**DECLARATION OF RAYMOND
P. NIRO**

DECLARATION OF RAYMOND P. NIRO– CASE NO. CV12-5707-MRP (E)

1 I, Raymond P. Niro, declare and state as follows:

2 1. As the head of our law firm, I accepted with concern the Court's
3 comments (made at the December 9 hearing) about the conduct of one of our
4 young lawyers, Gabriel Opatken. I promised the Court, then, that I would
5 promptly investigate the matter and, if necessary, take remedial action and I have
6 done so.

7 2. As I explained at the hearing on December 9, Mr. Opatken is a young
8 lawyer having joined our firm after graduating from Vanderbilt University Law
9 School in 2010. He was admitted to the Illinois State Bar on November 4, 2010,
10 the Northern District of Illinois on January 3, 2011 and the Federal Circuit on
11 March 20, 2012.

12 3. I agree that during his appearance before the Court on June 7, Mr.
13 Opatken's conduct could be understood as being arrogant and disrespectful to the
14 Court. He suggested at different points in the hearing that he would not ordinarily
15 call opposing counsel to ask permission to obtain documents subject to a protective
16 order and that a letter was sufficient to amend infringement contentions. Mr.
17 Opatken was told by the Court not to be "quite as aggressive as you have been in
18 addressing the Court" (Transcript of Proceedings, June 7, 2013 at 51).

19 4. This is not the way we expect lawyers from our firm to address a
20 federal judge and we again apologize on behalf of both Mr. Opatken and our law
21 firm.

22 5. What I had not realized until I talked to Mr. Opatken upon my return
23 to Chicago was that, at the time of the June 7 hearing, Mr. Opatken's mother was
24

1 critically ill and, in fact, died four days later, on June 11. This by no means
2 excuses or justifies Mr. Opatken's conduct but, in some small way, may help
3 explain it. Unfortunately, other lawyers in our firm put him in a position to appear
4 before the Court at a time of personal crisis for him, which was our fault, not his.
5 He simply should not have been in California appearing in this case on June 7 and
6 I have addressed that matter, as well, with the more senior lawyers who were
7 working on the case who sent Mr. Opatken to California to appear before the
8 Court.

9 6. To reiterate, I personally have met with Mr. Opatken and have
10 addressed with him the concerns the Court expressed at the December 9 hearing. I
11 have gone through his responses to the Court's questions on June 7, line-by-line
12 and point-by point. Further, Mr. Opatken's future appearances before any court in
13 any proceeding (and his written communications as well) will now be closely
14 monitored for the next year until we are certain his conduct will consistently
15 measure up to the high standards we expect of all our lawyers.

16 7. I appreciate the Court calling this matter to my attention and again
17 extend to the Court my sincerest apologies.

18 I declare under penalty of perjury under the laws of the United States that
19 the foregoing is true and correct to the best of my knowledge and belief.

20 Executed this 16th day of December 2013 in Chicago, Illinois.

21
22 
23 Raymond P. Niro
24

BEFORE THE UNITED STATES
JUDICIAL PANEL ON
MULTIDISTRICT LITIGATION

In re OPLUS TECHNOLOGIES, LTD.
PATENT LITIGATION

MDL No.: 1:12-P-93

**PLAINTIFF'S AMENDED MOTION FOR TRANSFER
AND CENTRALIZATION OF ACTIONS PURSUANT TO 28 U.S.C. § 1407**

For the reasons set forth in the accompanying Brief in Support, pursuant to 28 U.S.C. § 1407 and Rule 6.2 of the Rules of Procedure of the Judicial Panel on Multidistrict Litigation, Oplus Technologies Ltd. respectfully moves the Panel for an order (a) transferring *Oplus Technologies v. Sears Holding Corporation and VIZIO, Inc.* 2:12-cv-05707 (C.D. Cal.) to the Northern District of Illinois for pretrial proceedings and (b) centralizing those actions in the Northern District of Illinois for coordinated pretrial proceedings with *Oplus Technologies v. Sears Holding Corporation*, 11-cv-9017 (N.D. Ill.) and *Oplus Technologies v. Sears Holding Corporation and Funai Electric Co., Ltd.* 11-cv-9027 (N.D. Ill.), and *Oplus Technologies v. Sears Holding Corporation*, 11-cv-9029 (N.D. Ill.) which are pending in that district.

/s/ Arthur A. Gasey

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Attorneys for

OPLUS TECHNOLOGIES, LTD.

Levinstein, Matthew J. (Assoc-Chi-IP-Tech)

From: Opatken, Gabriel [gopatken@nshn.com]
Sent: Tuesday, July 31, 2012 12:54 PM
To: Lukas Jr., James J. (Assoc-Chi-IP-Tech)
Cc: Galis, Mark (Shld-Chi-IP-Tech); Levinstein, Matthew J. (Assoc-Chi-IP-Tech); Gasey, Arthur A; Gibbons, Paul C; Szpondowski, Kara
Subject: RE: Oplus - Sears and D&M (Case No. 11cv9017)

James,

I write in response to your previous emails requesting dismissal of Sears from Case No. 11-c-9017. In short, Oplus is not in a position to dismiss Sears based on your representations at this time.

First, your second correspondence raises the prospect of "additional vendors" not identified in the initial correspondence. Thus, there is concern that your representations are not complete.

Second, based on the dismissal of D&M, Sears remains the only defendant in the 9017 case.

Accordingly, Oplus is not limited to asserting claims against D&M products alone.

Finally, your co-counsel suggested at the hearing that Oplus was seeking to retain Sears for the purpose of venue. However, with D&M dismissed, that argument is moot.

The parties are scheduled for a further status on August 13th, and we look forward to proceeding with this case as to Sears only. Feel free to contact me if you would like to discuss further.

Thanks,

Gabe

From: lukasj@gtlaw.com [mailto:lukasj@gtlaw.com]
Sent: Saturday, July 28, 2012 6:10 PM
To: Opatken, Gabriel; Gasey, Arthur A; Szpondowski, Kara; Gibbons, Paul C
Cc: galism@gtlaw.com; levinsteinm@gtlaw.com
Subject: FW: Oplus - Sears and D&M (Case No. 11cv9017)

Counsel,

This email follows up on our unanswered email of Thursday July 26, 2012 to Mr. Opatken (shown below), in which Sears requested that Oplus dismiss Sears from the above-captioned case, with prejudice, so as to avoid any additional, unnecessary expense for both parties. We recently received information about additional vendors who advertised the Denon AVP-A1HDCI Ultra Reference 12 Channel A/V Preamp and we have included their names below.

In Oplus' Complaint, Oplus accused Sears of infringing the asserted claims of the '842 and '840 Patents based on third party vendors' advertising the accused Denon products Denon AVP-A1HDCI Ultra Reference 12 Channel A/V Preamp and the Denon DVD-5910 DVD Player on Sears' marketplace.

Those third party vendors are named: (1) Onecall.com; (2) Mydigitaluniverse.com; (3) PowersellerNYC.com; and (4) DVD Overseas, 1252 Remington Road, Unit A Schaumburg, IL 60173, dvdoverseas@hotmail.com. After receiving Oplus' Complaint, Sears requested that those vendors remove the accused Denon products from the marketplace. **Sears represents that according to its records no sales were ever made of the Denon AVP-A1HDCI Ultra Reference 12 Channel A/V Preamp and the Denon DVD-5910 DVD Player products by any third party vendor through Sears' marketplace.**

In light of this information and also based on Oplus' recent dismissal of D&M, we once again ask that Oplus agree to dismiss this action as against Sears with prejudice. Please confirm your agreement so that the parties can inform the Court at the upcoming status on Monday July 30, 2012. Thanks.

Very truly yours,

James

James J. Lukas, Jr.

8/10/2012

A010943

**UNITED STATES JUDICIAL PANEL
on
MULTIDISTRICT LITIGATION**

**IN RE: OPLUS TECHNOLOGIES, LTD.,
PATENT LITIGATION**

MDL No. 2400

ORDER DENYING TRANSFER

Before the Panel: Pursuant to 28 U.S.C. § 1407, patentholder Oplus Technologies, Ltd. (Oplus) seeks centralization in the Northern District of Illinois of six actions involving the alleged infringement of two patents concerning methods of video signal error correction and deinterlacing technologies.¹ This litigation currently consists of six actions listed on Schedule A and pending in three districts. All responding defendants² oppose centralization.

On the basis of the papers filed and hearing session held, we are not persuaded that centralization would serve the convenience of the parties and witnesses or further the just and efficient conduct of this litigation at this time. These actions do involve similar allegations surrounding the infringement or validity of certain claims of the '840 patent, and some cases also involve certain claims of the '842 patent. Despite the existence of some factual overlap among the present actions, Oplus has failed to convince us that centralization is necessary in these circumstances.

Several considerations weigh against centralization. Only three manufacturing entities – JVC, VIZIO, and Funai – in three actions are accused of infringement. Retailer defendant Sears is named in the other three actions, all of which are pending in the Northern District of Illinois. In addition, one of the actions is already steadily progressing, with a *Markman* hearing scheduled for early 2013. With so few involved defendants and only a limited number of common claims and patents in dispute, it appears that informal cooperation among the parties and coordination among the involved judges is a feasible alternative to transfer. The parties may find it advisable to coordinate common discovery, and the involved courts may wish to allow one claim construction hearing to proceed in advance of the others. We note that defendants appear to be amenable to cooperative efforts to reduce costs in this litigation, given that they filed a single consolidated brief on the issue of centralization. Thus, although we are denying centralization, we nevertheless encourage the parties and involved courts to pursue various alternative approaches, should the need arise, to minimize the potential for

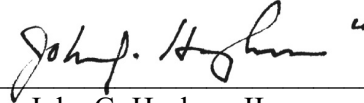
¹ Specifically at issue are U.S. Patent No. 7,271,840 ('840 patent) entitled "Method for Determining Entropy of a Pixel of a Real Time Streaming Digital Video Image Signal, and Applications Thereof." and U.S. Patent No. 6,239,842 entitled "Method of De-Interlacing Video Signals Using a Mixed Mode Spatial and Temporal Approximation Technique."

² Sears Holdings Corp. (Sears), VIZIO, Inc. (VIZIO), Funai Electric Co., Ltd. (Funai), and JVC Americas Corp. (JVC).

duplicative discovery and inconsistent pretrial rulings. *See, e.g., In re Eli Lilly and Co. (Cephalexin Monohydrate) Pat. Litig.*, 446 F.Supp. 242, 244 (J.P.M.L. 1978); *see also Manual for Complex Litigation, Fourth*, § 20.14 (2004).

IT IS THEREFORE ORDERED that the motion, pursuant to 28 U.S.C. § 1407, for centralization of the actions listed on Schedule A is denied.

PANEL ON MULTIDISTRICT LITIGATION



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Paul J. Barbadoro
Charles R. Breyer

**IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION**

OPLUS TECHNOLOGIES, LTD.,)	
Plaintiff,)	
	)	Case No. 11 CV 8539
v.)	
	)	Judge Robert M. Dow, Jr.
SEARS HOLDING CORPORATION, et al.,)	
Defendants.)	

ORDER

For the reasons set forth below, the Court overrules Defendant Vizio, Inc.’s objections [85] to Magistrate Judge Mason’s Report and Recommendation of July 28, 2014 [84] and adopts the Report and Recommendation in full. In doing so, the Court denies Defendant Vizio’s motion for attorneys’ fees and expenses pursuant to 35 U.S.C. § 285, 28 U.S.C. § 1927, and the Court’s inherent power [53].

STATEMENT

On July 18, 2014, Judge Mason issued a Report and Recommendation [84] setting forth his recommended disposition of Defendant Vizio, Inc.’s motion for attorneys’ fees and expenses pursuant to 35 U.S.C. § 285, 28 U.S.C. § 1927, and the Court’s inherent power [53]. Judge Mason recommended that the Court deny Vizio’s motion for attorneys’ fees and expenses. Defendant Vizio timely filed objections to the Report and Recommendation [85], to which Plaintiff Oplus Technologies has responded. Specifically, Vizio argues that Magistrate Judge Mason (1) erred in concluding that denial of fees was proper because Vizio was seeking to recover the same fees that it had already been denied in by Judge Pfaelzer in the Central District of California; (2) applied the wrong legal standard for awarding fees under 35 U.S.C. § 285; (3) failed to acknowledge several other acts of misconduct that occurred before this Court; and (4) failed to award any fees at all.

Federal Rule of Civil Procedure 72 allows parties to file objections to a magistrate judge’s order or report and recommendation. “Upon objection, the district judge must review the relevant part of the magistrate judge’s decision.” *Schur v. L.A. Weight Loss Centers, Inc.*, 577 F.3d 752, 760 (7th Cir. 2009). For dispositive matters, the district court must “determine de novo any part of the magistrate judge’s disposition that has been properly objected to” (Fed. R. Civ. P. 72(b)), while for nondispositive matters, the district judge must “modify or set aside any part of the order that is clearly erroneous or is contrary to law” (Fed. R. Civ. P. 72(a)). Judge Mason’s Report and Recommendation recommending that an award of fees be denied is dispositive and will be reviewed *de novo*. See *Alpern v. Lieb*, 38 F.3d 933, 935 (7th Cir. 1994) (reasoning that attorney’s fees are treated as separate claims for purposes of appellate jurisdiction, and that, given that an award of monetary sanctions causes money to change hands, it is akin to an award of damages, so that the power to award monetary sanctions belongs with the district judge); see also *Kucala Enterprises, Ltd. v. Auto Wax Co., Inc.*, 2003 WL 22433095, at *1 (N.D. Ill. Oct.27, 2003) (reviewing de novo a magistrate judge’s recommendation that a party be awarded attorney’s fees incurred in bringing a motion for sanctions). Under this standard, the court must “give ‘fresh consideration to those issues to which specific objections have been made.’” *Rajaratnam v. Moyer*, 47 F.3d 922, 924 n. 8 (7th

Cir. 1995); see also *MacNeil Automotive Products, Ltd. v. Cannon Automotive Ltd.*, 2011 WL 812140, at *2-3 (N.D. Ill. Mar. 1, 2011).

On the whole, Vizio's objections miss the mark. Vizio's attempt to complicate the issue before this Court and Judge Mason misses the clear import of Judge Mason's ruling (and this Court's wholehearted agreement with Judge Mason's conclusion): "Other than Oplus' initial ill-advised decision to name Sears as a defendant in an attempt to establish venue here, there is nothing exceptional about this case." That act of gamesmanship was quickly remedied by the transfer to the Central District of California and, in this Court's discretion, simply is "not egregious enough to warrant any award of fees, let alone the imposition of more than \$200,000 in fees and expenses."

Turning to Vizio's specific arguments, as to Vizio's first contention—that Judge Mason erred in denying fees because Vizio was seeking to recover the same fees that it had already been denied in by Judge Pfaelzer in the Central District of California—it misstates Judge Mason's ruling in part. To the extent that Judge Mason's report suggests that he believed Vizio to be asking for fees incurred in California, Judge Mason (as demonstrated below) was partly correct. However, the clear import of his opinion was that the conduct that occurred here, prior to transfer, was not exceptional and does not warrant the imposition of fees. He partly relied on the fact that Vizio is seeking to recover the fees that Vizio incurred in this district,¹ whereas the questionable conduct that occurred in this Court prior to transfer related to Sears. However, even if Sears had moved for fees, the result likely would have been the same: the decision to file suit here, instead of in California, does not rise to the level of bad faith needed to make this case exceptional. The tactics employed in patent litigation sometimes are atypical of the mine run of cases. Given the high stakes often involved in patent litigation, parties and their counsel often pull out all of the stops in pursuit of an edge. In fact, both sides in this case were admonished by the California district court judge for "delays and avoidance tactics."

This Court agrees with Magistrate Judge Mason that the decision to file suit in this district instead of in California does not by itself render Oplus's conduct exceptional. Vizio points to additional acts of misconduct that it contends occurred before this Court. But Oplus's decision to request consolidation with the Panel for Multidistrict Litigation occurred while the Oplus/Vizio litigation was pending in the Central District of California (not in this district). Because Oplus's petition before the MDL Panel was filed while the litigation between Oplus and Vizio was pending

¹ Magistrate Judge Mason did note that Vizio is seeking the same fees here that it was already denied by Judge Pfaelzer in the Central District of California. [84 at 6-7: "At the end of the day, Vizio's motion suggests that Vizio is seeking not fees and expenses incurred on behalf of Sears in this case, but fees and expenses incurred on its own behalf in the California case."] That factual finding is supported by the evidence: nearly 70% (\$138,712) of the fees and expenses that Vizio now seeks arise from the same time entries that Vizio presented with its fees motion in California. See Gasey Dec. [69-1, ¶ 2]. And, as Magistrate Judge Mason recognized, Judge Pfaelzer did not direct Vizio to this Court to take another shot at recovering those fees: "Judge Pfaelzer indicated that *Sears* should seek its fees here; she ruled that Vizio was not entitled to fees." [84 at 6] (emphasis added). Vizio now represents to the Court that it is the proper party to seek recovery of these fees via an agreement that it has with Sears. Perhaps that is the case (although there is evidence to suggest that Vizio is seeking to recover for some fees incurred prior to accepting Sears' tender of defense, and also for fees incurred after the case against Sears was stayed); but the agreement between Sears and Vizio does not change the fact that neither Judge Mason, nor this Court, believes the parties' brief stop in this district to be exceptional and worth the imposition of fees.

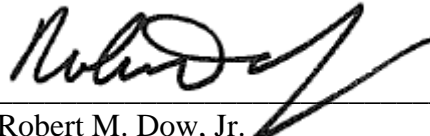
in the Central District of California (see MDL No. 2400, Dkt. No. 1-1, filed July 23, 2012), California was the appropriate venue for Vizio to seek its fees relating to the petition. And Vizio did so, but Judge Pfaelzer declined to award them.² Judge Pfaelzer's opinions do not suggest that she was leaving it for another court to decide whether Vizio was entitled to fees relating to Oplus's petition before the MDL Panel.

Second, even if the MDL proceedings had been initiated while the Oplus/Vizio litigation still was in this jurisdiction, the Court cannot say that Oplus's motion to consolidate four separate cases with the Panel for Multidistrict Litigation was frivolous or sanctionable. The cases allegedly all involved the same patents and similar or identical technology and two of them already were pending in Northern District of Illinois in the initial stages of discovery. Although the MDL Panel denied Oplus's motion for consolidation, it did not suggest that the motion was frivolous, but rather noted that there was "factual overlap" amongst the various actions and encouraged the parties and the various courts to take steps to "minimize the potential for duplicative discovery and inconsistent pretrial rulings." Simply put, requesting that a case be consolidated for MDL proceedings falls short of an "act of misconduct," as suggested by Vizio.

Finally, the Court briefly addresses Vizio's contention that Judge Mason committed legal error by "ignor[ing] current law and merely follow[ing]" Judge Pfaelzer's order denying Vizio's motion for fees. This simply is not so. Magistrate Judge Mason considered whether Oplus's claims against Sears warranted an award of fees, and, in doing so, correctly recited the new legal standard for finding a case "exceptional" under 35 U.S.C. § 285: "The Supreme Court recently held that the word 'exceptional' as it is used in the Patent Act, should be interpreted 'in accordance with its ordinary meaning * * *.'" [84 at 4 (citing *Highmark, Inc. v. Allcare Health Management System, Inc.*, 134 S.Ct. 1744, 1748 (2014); *Octane Fitness, LLC v. Icon Health & Fitness, Inc.*, 134 S.Ct. 1749, 1756 (2014).] To the extent that Vizio is arguing that Judge Mason erred in not revisiting (and applying the correct legal standard to) Judge Pfaelzer's decision to deny Vizio its own fees (as opposed to fees generated on Sears' behalf) or for conduct that occurred outside of the Northern District of Illinois, this argument lacks merit for the reasons stated above.

In sum, Judge Mason correctly concluded that, to the extent that Vizio is seeking fees incurred while representing itself, Judge Pfaelzer already ruled on (and denied) that request. Judge Mason also independently considered Oplus's conduct relating to Sears and reasonably found that it did not warrant an award of fees. This Court, too, finds that the conduct that occurred several years ago in this district was not exceptional such that the imposition of fees is warranted. Therefore, the Court adopts Judge Mason's Report and Recommendation of July 28, 2014, and denies Defendant Vizio, Inc.'s motion for attorneys' fees and expenses pursuant to 35 U.S.C. § 285, 28 U.S.C. § 1927, and the Court's inherent power [53].

Dated: September 3, 2014



Robert M. Dow, Jr.
United States District Judge

² Moreover, in opposing centralization, Vizio's attorneys only represented Vizio, not Sears. As set forth earlier, Judge Pfaelzer did not direct Vizio to this Court to take another shot at recovering those fees; she indicated that *Sears* should seek its fees here.

**IN THE UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION**

OPLUS TECHNOLOGIES, LTD.,)	
)	
Plaintiff,	)	No. 11 CV 8539
)	
v.	)	District Judge Robert M. Dow, Jr.
)	
SEARS HOLDINGS CORPORATION and VIZIO, INC.	)	Magistrate Judge Michael T. Mason
)	
Defendants.)	

**To: The Honorable Robert M. Dow, Jr.
United States District Judge**

REPORT AND RECOMMENDATION

Michael T. Mason, United States Magistrate Judge:

Currently pending before the Court is Vizio's Motion for Attorneys' Fees and Expenses Pursuant to 35 U.S.C. §285, 28 U.S.C. §1927, and the Court's Inherent Power [53]. For the reasons explained below, the Court recommends that the District Court deny the motion.

Background & Procedural History

Oplus Technologies owns the full and exclusive right, title and interest in United States Patent No. 6,239,842, issued May 29, 2001 and entitled "Method of De-Interlacing Video Signals Using a Mixed Mode Spatial and Temporal Approximation Technique" ("the '842 Patent"). First Amended Complaint [14], ¶3. Oplus also holds full and exclusive right, title and interest in United States Patent No. 7,271,840, issued September 18, 2007 and entitled "Method for Determining Entropy of a Pixel of a Real Time Streaming Digital Video Image Signal, and Application Thereof" ("the '840 Patent"). *Id.*, ¶4.

On December 1, 2011, Oplus filed a complaint in this court against Sears Holdings Corporation and Vizio, alleging infringement of both patents. [1]. Oplus filed its First Amended Complaint on December 20, 2011 [14]. More specifically, Oplus alleged that Vizio infringed the '842 Patent "by making, using, importing, selling or offering to sell, and/or contributing to others' use of, among other products, video products [such as the Vizio VP505XVT television] using deinterlacing methods that fall within the scope of at least claim 14 of the '842 Patent," and that Sears infringed the '842 Patent "by importing, selling and/or offering to sell such infringing products as the Vizio VP505XVT television." First Amended Complaint [14], ¶¶9-10. Oplus further alleged that Vizio infringed the '840 Patent "by making, using, importing, selling or offering to sell, and/or by contributing to others' use of, among other products, video products [such as the Vizio P50HDTV10A, VM60P, GV46L televisions] using video signal error correction methods that fall within the scope of at least claim 56 of the '840 Patent," and that Sears infringed the '840 Patent "by importing, selling and/or offering to sell such infringing video products. . . ." *Id.*, ¶¶11-12.

After filing an answer but before any real discovery began, Vizio filed a motion asking the District Court to sever the claims against it and transfer those severed claims to the United States District Court for the Central District of California; Vizio also moved to stay the case against Sears pending the outcome of the case against Vizio [36]. In support of its transfer motion, Vizio argued that the Central District of California was a more convenient forum for the parties and the witnesses, and, in support of the motion to sever and stay, Vizio argued that Sears was really a "peripheral" defendant. Judge Dow, the district judge to whom the case was assigned, granted the motion in its entirety [43, 44]. In doing so, Judge Dow noted that

Sears appears to be . . . a peripheral defendant. According to Vizio and not

disputed by Plaintiff, Vizio's sales of the accused televisions to Sears constituted a very minor portion of Vizio's business during the relevant period. Furthermore, Vizio attests (and Plaintiff does not present evidence to the contrary) that Sears had no involvement in the design, development, manufacture, or any other technical aspects of the accused Vizio products. Thus, it follows that Sears is not likely to have information bearing on Oplus's infringement claims or Vizio's defenses. Moreover, Sears is one customer of many and has not sold Vizio televisions since January 2010. When a plaintiff chooses only one reseller of the accused product out of many, the "inference here is irresistible that the principal reason [the customer defendant] has been sued is to establish venue in the Northern District of Illinois."

Memorandum Opinion and Order [44], p. 5 (quoting *Ambrose v. Steelcase, Inc.*, No. 02 C 2753, 2002 WL 1447871 (N.D. Ill. July 3, 2002)). Having determined that "the obvious reason Oplus joined Sears in this action was to establish venue in the Northern District of Illinois" and that "[t]he naming of an insignificant party as a defendant in an action simply to establish venue in the chosen district is impermissible forum shopping," Memorandum Opinion and Order [44], p. 6, Judge Dow transferred the claims against Vizio to California, stayed the claims against Sears and placed the matter on the "suspense calendar" pending disposition of the claims against Vizio in the transferred action [43, 45].

The case against Vizio proceeded in California before the Honorable Mariana Pfaelzer, and, on October 17, 2013, Judge Pfaelzer granted summary judgment in favor of Vizio. Thereafter, consistent with Judge Dow's transfer order, the parties advised the District Court here that the transferred claims had been resolved. On March 18, 2014, the parties filed a joint stipulation for entry of final judgment before Judge Dow [47]; final judgment in favor of Sears was entered that same day. Two weeks later, Vizio filed a motion for sanctions [53]. Judge Dow referred the motion to this Court.

Discussion

In its motion, Vizio seeks sanctions, in the form of attorneys' fees and costs,

pursuant to 35 U.S.C. §285, 28 U.S.C. §1927, and “the Court’s inherent power” [53]. Vizio seeks \$199,911 in attorneys’ fees and \$2,664 in travel expenses, plus, presumably, additional fees incurred in connection with the briefing of the sanctions motion. Oplus opposes any award of fees, arguing that Vizio has already sought and been denied these same fees in the California action and that the fees Vizio seeks were incurred, not for Sears, but for Vizio, which is not a party to this case and has not been a party to this case for years. Oplus also challenges the fees Vizio seeks as unreasonable.

Section 285 of the Patent Act allows a court, “in exceptional cases” to “award reasonable attorney fees to the prevailing party.” 35 U.S.C. §285. The Supreme Court recently held that the word “exceptional” as it is used in the Patent Act, should be interpreted “in accordance with its ordinary meaning,” *Highmark, Inc. v. Allcare Health Management System, Inc.*, 134 S.Ct. 1744, 1748 (2014); *Octane Fitness, LLC v. Icon Health & Fitness, Inc.*, 134 S.Ct. 1749, 1756 (2014). Thus, “an ‘exceptional’ case is simply one that stands out from others with respect to the substantive strength of a party’s litigation position (considering both the governing law and the facts of the case) or the unreasonable manner in which the case was litigated.” *Octane Fitness*, 134 S.Ct. at 1756; *Highmark*, 134 S.Ct. at 1748. Further, the Supreme Court held, “district courts may determine whether a case is ‘exceptional’ in the case-by-case exercise of their discretion, considering the totality of the circumstances.” *Octane Fitness*, 134 S.Ct. at 1756; *Highmark*, 134 S.Ct. at 1748.

Vizio also seeks sanctions under 28 U.S.C. §1927 and pursuant to the Court’s inherent power. Section 1927 provides that “[a]ny attorney or other person admitted to conduct cases in any court of the United States or any Territory thereof who so multiplies the proceedings in any case unreasonably and vexatiously may be required by the court to

satisfy personally the excess costs, expenses, and attorneys' fees reasonably incurred because of such conduct.” “Sanctions against counsel under 28 U.S.C. §1927 are appropriate when ‘counsel acted recklessly, counsel raised baseless claims despite notice of the frivolous nature of these claims, or counsel otherwise showed indifference to statutes, rules, or court orders.’” *Grochocinski v. Mayer Brown Rowe & Maw, LLP*, 719 F.3d 785, 799 (7th Cir. 2013)(quoting *Kotsilieris v. Chalmers*, 966 F.2d 1181, 1184-85 (7th Cir. 1992)). The same is true when sanctions are awarded pursuant to the court’s inherent power: “[t]he federal courts have the inherent power to impose a wide range of sanctions upon parties for abusive litigation” but only in “cases in which a litigant has engaged in bad-faith conduct or willful disobedience of a court's orders.” *Grochocinski*, 719 F.3d at 799 (quoting *Chambers v. NASCO, Inc.*, 501 U.S. 32, 47 (1991); *Mach v. Will County Sheriff*, 580 F.3d 495, 501 (7th Cir. 2009)). “There is no single litmus test for determining what constitutes bad faith, though more than mere negligence is required.” *Grochocinski*, 719 F.3d at 799 (citing *Maynard v. Nygren*, 332 F.3d 462, 471 (7th Cir. 2003)).

Vizio claims that an award of fees is appropriate under any and all of these authorities because “Oplus and its counsel brought exceptionally meritless patent infringement claims in bad faith and engaged in impermissible forum shopping.” Amended Memorandum in Support of Vizio’s Motion for Fees [62], p. 10. We disagree that an award of fees is appropriate. Other than Oplus’ initial ill-advised decision to name Sears as a defendant in an attempt to establish venue here, there is nothing exceptional about this case. And that one act of misconduct – quickly remedied with Judge Dow’s transfer order – is simply not egregious enough to warrant any award of fees, let alone the imposition of more than \$200,000 in fees and expenses. Although it is true that Judge Pfaelzer found the case to be “exceptional,” it is also true that the conduct that gave Judge

Pfaelzer pause all happened in California, not here. In fact, not much happened here at all. The meat of the case went forward in the Central District of California, before Judge Pfaelzer, and the merits were decided there. And, significantly, although Judge Pfaelzer determined that “Oplus’s tactics in this litigation have been vexatious and meet the standard for litigation misconduct,” she declined to award fees to Vizio. See Order Denying Defendant Vizio, Inc.’s Motion for Attorneys’ Fees and Expert Witness Fees [62-16], pp. 15, 16-18 (attached to Adrian M. Pruetz’s Amended Declaration as Exhibit O). We see no reason to effect a different outcome here, where none of that “misconduct” occurred.

Vizio represents, in its reply brief, that Judge Pfaelzer “expressly declined to make a substantive ruling with respect to the fees and costs sought here and directed that Vizio seek these fees and costs from this Court instead.” Reply, p. 2. But that is not entirely accurate. Judge Pfaelzer indicated that *Sears* should seek its fees here; she ruled that Vizio was not entitled to fees. Had Judge Pfaelzer awarded Vizio fees in the California action, there is no way Vizio – even as *Sears*’ indemnitor – could recover those same fees again here. Such an outcome would be both unfair and unreasonable. Having been denied the fees in California, it is unclear why Vizio thinks it should get another bite at that apple. Nor is it clear why Vizio – having been denied fees in the forum in which the merits of the claims were actually litigated and decided – thinks it should be awarded fees here, where very little of substance actually transpired.

Vizio claims that, had Judge Pfaelzer decided the motion under the now relaxed standards articulated in *Octane Fitness*, she would have granted Vizio fees and expenses. But the judge did not decide the case under *Octane Fitness* and *Highmark*; she did not award fees and we are in no position to alter that outcome by awarding fees to *Sears* for

work done on behalf of another party in another forum.

Vizio cites Judge Zagel's opinion in *Illinois Computer Research v. Best Buy Stores*, No. 10 CV 4298 (issued 12/7/12)(attached to Pruetz's Supplemental Declaration as Exhibit W) to support its position that its indemnification agreement with Sears allows it to seek fees here, even though the claims against it did not go forward in this district. In particular, Vizio emphasizes Judge Zagel's finding that "the purposes of both statutes [§285 and 28 U.S.C. §1927] would be ill-served if a party who has engaged in vexatious conduct is able to avoid fees based on the happenstance of an opponent's indemnity arrangement." *Id.*, p. 4. Here, fees are being denied, not simply because Vizio technically is no longer a party to the case, but because the Judge who dealt with the bulk of this case already said that the case does not warrant an award of fees. If the main defendant (having endured litigation misconduct and discovery abuses to win on the merits) is not entitled to recover fees under the circumstances, we fail to see why the peripheral defendant (who endured none of those abuses and simply piggybacked on the work done in California) should be entitled to do so.

In support of its motion, Vizio submitted an amended declaration from Adrian M. Pruetz, an attorney of record for both Sears and Vizio, who states that the fees Vizio seeks are reasonable. According to Mr. Pruetz's declaration, Vizio is seeking to recover from Oplus more than \$200,000 in fees and expenses, \$53,000 of which was incurred while this case was stayed. Literally nothing happened in this case during this period of time; no work was performed on behalf of Sears. Given the posture of the case during this time period, Vizio's request, at least for these months, is patently unreasonable. Beyond that, common sense dictates that \$200,000 in fees and expenses is decidedly unreasonable in a case where so little actually transpired. At the end of the day, Vizio's motion suggests

that what Vizio is seeking is not fees and expenses incurred on behalf of Sears in this case, but fees and expenses incurred on its own behalf in the California case. Judge Pfaelzer already denied that request, and we recommend doing so as well.

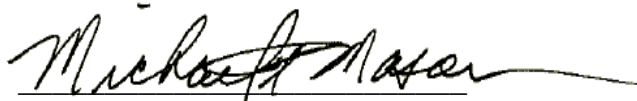
Conclusion

For the reasons stated above, we respectfully recommend that the District Court deny Vizio's Motion for Attorneys' Fees and Expenses [53].

Specific written objections to this Report and Recommendation may be served and filed within fourteen (14) days from the date that this order is served. Fed. R. Civ. P. 72. Failure to file objections with the District Court within the specified time will result in a waiver of the right to appeal all findings, factual and legal, made by this Court in the Report and Recommendation. *Lorentzen v. Anderson Pest Control*, 64 F.3d 327, 330 (7th Cir. 1995).

Dated: July 28, 2014

ENTERED:


MICHAEL T. MASON
United States Magistrate Judge

No Discovery from Vizio on “Chipmakers”

No Evidence Regarding Meetings

Q. Was Vizio involved at all in having the SiliconOptix chip incorporated in the VP505XVT?

A. We attended meetings with AmTran and Silicon Optix.

Q. When were these meetings?

A. I don't know. I can't remember.

Page 33:10-15 – Ken Lowe Deposition (Exhibit L)

No Responsive Documents Produced

Plaintiff's First Set of Requests for Production of Documents to Vizio

65. All documents sufficient to identify why Vizio chose to incorporate Faroudja DCDi, Silicon Optix HQV, or MeditaTek technology in the Relevant Products.

66. All documents sufficient to describe the implementation of Faroudja DCDi, Silicon Optix HQV, or MeditaTek technology in the Relevant Products.

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8 Attorneys for Non-Party MediaTek USA Inc.

9
10 **UNITED STATES DISTRICT COURT**
11 **FOR THE NORTHERN DISTRICT OF CALIFORNIA**

12 Oplus Technologies, Ltd.,

13 Plaintiff,

14 v.

15 Sears Holding Corporation and VIZIO, Inc.,

16 Defendants.

Misc. No. _____

(related to Case No: 12-cv-5707
pending in the United States District Court
for the Central District of California)

17
18 **NON-PARTY MEDIATEK USA INC.'S OBJECTIONS AND RESPONSES**
19 **TO THE "SUBPOENA TO PRODUCE DOCUMENTS, INFORMATION, OR OBJECTS**
20 **OR TO PERMIT INSPECTION OF PREMISES IN A CIVIL ACTION"**

21 **DATED FEBRUARY 14, 2013, AND ISSUED BY OPLUS TECHNOLOGIES, LTD.**

22 Non-Party MediaTek USA Inc. ("MediaTek USA") hereby objects and responds as follows to
23 the "Subpoena to Produce Documents, Information, or Objects or to Permit Inspection of Premises in
24 a Civil Action" dated February 14, 2013, returnable March 4, 2013, and issued out of this Court by
25 counsel for Oplus Technologies, Ltd. in relation to the above-entitled proceeding pending in the
26 United States District Court for the Central District of California.
27
28

OBJECTIONS TO THE INSTRUCTIONS IN “EXHIBIT A” TO THE SUBPOENA

MediaTek USA objects to the instructions in the second, third, and fourth paragraphs as overly broad, as being unreasonable, as requiring actions or information beyond those required by Fed. R. Civ. P. 45, and as imposing undue burden and expense on MediaTek USA. *See* Fed. R. Civ. P. 45(c)(1).

OBJECTIONS TO THE “DEFINITIONS” IN “EXHIBIT A” TO THE SUBPOENA

1. MediaTek USA objects to the definition of “VIZIO” and “Defendant” as overly broad, as being unreasonable, and as imposing undue burden and expense on MediaTek USA. *See* Fed. R. Civ. P. 45(c)(1).

2. MediaTek USA objects to the definition of “MediaTek” as overly broad, as being unreasonable, and as imposing undue burden and expense on MediaTek USA. *See* Fed. R. Civ. P. 45(c)(1). MediaTek USA’s objections and responses are being made on its own behalf and not on behalf of any predecessors, parent companies, partners, wholly-owned or partially-owned subsidiaries, divisions, past or present affiliated corporations, or any past or present employees, agents, officers, directors, representatives, consultants, accountants, attorneys, or other entities.

GENERAL OBJECTIONS TO THE “DOCUMENT REQUESTS”

IN “EXHIBIT A” TO THE SUBPOENA

1. MediaTek USA objects to the extent the “Document Requests” seek information that is protected from discovery under the attorney-client privilege, the attorney work product immunity, and/or any other privilege or immunity. *See* Fed. R. Civ. P. 26(b)(1).

2. MediaTek USA objects to the extent the “Document Requests” fail to specify the subject matter as precisely as possible, showing the general relevancy of the material and the reasonableness of the subpoena. *See* Fed. R. Civ. P. 26(b)(1).

3. MediaTek USA objects to the extent the “Document Requests” are not relevant to the subject matter involved in the underlying action. *See* Fed. R. Civ. P. 26(b)(1).

4. MediaTek USA objects to the extent the “Document Requests” seek information the collection of which would impose and undue burden and/or expense on MediaTek USA. *See* Fed. R. Civ. P. 45(c)(1).

1 5. MediaTek USA objects to the extent the “Document Requests” seek information that
2 is not in the possession, custody, or control of MediaTek USA.

3 6. MediaTek USA objects to the extent the “Document Requests” seek information that
4 is not relevant to any party’s claim or defense in the underlying action. *See* Fed. R. Civ. P. 26(b)(1).

5 7. MediaTek USA objects to the extent the “Document Requests” seek information that
6 is unreasonably cumulative or duplicative, or can be obtained from some other source that is more
7 convenient, less burdensome, or less expensive. *See* Fed. R. Civ. P. 26(b)(2)(C)(i).

8 8. MediaTek USA objects to the extent the “Document Requests” seek information that
9 the party seeking discovery has had ample opportunity to obtain by discovery in the underlying
10 action. *See* Fed. R. Civ. P. 26(b)(2)(C)(ii).

11 9. MediaTek USA objects to the extent the “Document Requests” seek information for
12 which the burden or expense of the proposed discovery outweighs its likely benefit, considering the
13 needs of the case, the amount in controversy, the parties’ resources, the importance of the issues at
14 stake in the investigation, and the importance of discovery in resolving the issues. *See* Fed. R. Civ. P.
15 26(b)(2)(C)(iii).

16 10. MediaTek USA objects to the extent the “Document Requests” would require
17 MediaTek USA to provide information under a protective order that provides inadequate protection
18 for the confidential and proprietary information MediaTek USA and/or MediaTek Inc.

19 11. MediaTek USA objects to the extent that the subpoena does not provide sufficient time
20 to collect and produce documents in response to the “Document Requests.”

21 **SPECIFIC OBJECTIONS TO THE “DOCUMENT REQUESTS”**

22 **REQUEST NO. 1**

23 All specifications relating to MDDi.

24 **OBJECTIONS AND RESPONSE TO REQUEST NO. 1**

25 MediaTek USA repeats its “Objections to the Instructions in ‘Exhibit A’ to the Subpoena,”
26 “Objections to the ‘Definitions’ in ‘Exhibit A’ to the Subpoena,” and “General Objections to the
27 ‘Document Requests’ in ‘Exhibit A’ to the Subpoena” set forth above.
28

MediaTek USA further objects to this request as seeking information that is not in the possession, custody, or control of MediaTek USA.

MediaTek USA further objects to this request as unreasonably cumulative or duplicative of other requests. *See* Fed. R. Civ. P. 26(b)(2)(C)(i).

MediaTek USA further objects to this request as being overly broad and unduly burdensome to the extent that it seeks “all” documents of the type identified. *See* Fed. R. Civ. P. 26(b)(2)(C)(iii).

MediaTek USA further objects to this request as seeking information for which the burden or expense of the proposed discovery outweighs its likely benefit, considering the needs of the case, the amount in controversy, the parties’ resources, the importance of the issues at stake in the action, and the importance of discovery in resolving the issues. *See* Fed. R. Civ. P. 26(b)(2)(C)(iii).

Subject to its objections and to the extent the request is understood, MediaTek USA responds that MediaTek Inc. will voluntarily undertake a search for representative documents that are responsive to this request, but MediaTek USA makes no representation that MediaTek Inc. will locate or produce any or all documents that are the subject of this request.

REQUEST NO. 2

All white papers relating to MDDi.

OBJECTIONS AND RESPONSE TO REQUEST NO. 2

MediaTek USA repeats its “Objections to the Instructions in ‘Exhibit A’ to the Subpoena,” “Objections to the ‘Definitions’ in ‘Exhibit A’ to the Subpoena,” and “General Objections to the ‘Document Requests’ in ‘Exhibit A’ to the Subpoena” set forth above.

MediaTek USA further objects to this request as seeking information that is not in the possession, custody, or control of MediaTek USA.

MediaTek USA further objects to this request as unreasonably cumulative or duplicative of other requests. *See* Fed. R. Civ. P. 26(b)(2)(C)(i).

MediaTek USA further objects to this request as being overly broad and unduly burdensome to the extent that it seeks “all” documents of the type identified. *See* Fed. R. Civ. P. 26(b)(2)(C)(iii).

MediaTek USA further objects to this request as seeking information for which the burden or expense of the proposed discovery outweighs its likely benefit, considering the needs of the case, the

1 amount in controversy, the parties' resources, the importance of the issues at stake in the action, and
2 the importance of discovery in resolving the issues. *See* Fed. R. Civ. P. 26(b)(2)(C)(iii).

3 Subject to its objections and to the extent the request is understood, MediaTek USA responds
4 that MediaTek Inc. will voluntarily undertake a search for representative documents that are
5 responsive to this request, but MediaTek USA makes no representation that MediaTek Inc. will locate
6 or produce any or all documents that are the subject of this request.

7 **REQUEST NO. 3**

8 All flow charts relating to MDDi.

9 **OBJECTIONS AND RESPONSE TO REQUEST NO. 3**

10 MediaTek USA repeats its "Objections to the Instructions in 'Exhibit A' to the Subpoena,"
11 "Objections to the 'Definitions' in 'Exhibit A' to the Subpoena," and "General Objections to the
12 'Document Requests' in 'Exhibit A' to the Subpoena" set forth above.

13 MediaTek USA further objects to this request as seeking information that is not in the
14 possession, custody, or control of MediaTek USA.

15 MediaTek USA further objects to this request as unreasonably cumulative or duplicative of
16 other requests. *See* Fed. R. Civ. P. 26(b)(2)(C)(i).

17 MediaTek USA further objects to this request as being overly broad and unduly burdensome
18 to the extent that it seeks "all" documents of the type identified. *See* Fed. R. Civ. P. 26(b)(2)(C)(iii).

19 MediaTek USA further objects to this request as seeking information for which the burden or
20 expense of the proposed discovery outweighs its likely benefit, considering the needs of the case, the
21 amount in controversy, the parties' resources, the importance of the issues at stake in the action, and
22 the importance of discovery in resolving the issues. *See* Fed. R. Civ. P. 26(b)(2)(C)(iii).

23 Subject to its objections and to the extent the request is understood, MediaTek USA responds
24 that MediaTek Inc. will voluntarily undertake a search for representative documents that are
25 responsive to this request, but MediaTek USA makes no representation that MediaTek Inc. will locate
26 or produce any or all documents that are the subject of this request.

27 **REQUEST NO. 4**

28 All block diagrams relating to MDDi.

OBJECTIONS AND RESPONSE TO REQUEST NO. 4

MediaTek USA repeats its “Objections to the Instructions in ‘Exhibit A’ to the Subpoena,” “Objections to the ‘Definitions’ in ‘Exhibit A’ to the Subpoena,” and “General Objections to the ‘Document Requests’ in ‘Exhibit A’ to the Subpoena” set forth above.

MediaTek USA further objects to this request as seeking information that is not in the possession, custody, or control of MediaTek USA.

MediaTek USA further objects to this request as unreasonably cumulative or duplicative of other requests. *See* Fed. R. Civ. P. 26(b)(2)(C)(i).

MediaTek USA further objects to this request as being overly broad and unduly burdensome to the extent that it seeks “all” documents of the type identified. *See* Fed. R. Civ. P. 26(b)(2)(C)(iii).

MediaTek USA further objects to this request as seeking information for which the burden or expense of the proposed discovery outweighs its likely benefit, considering the needs of the case, the amount in controversy, the parties’ resources, the importance of the issues at stake in the action, and the importance of discovery in resolving the issues. *See* Fed. R. Civ. P. 26(b)(2)(C)(iii).

Subject to its objections and to the extent the request is understood, MediaTek USA responds that MediaTek Inc. will voluntarily undertake a search for representative documents that are responsive to this request, but MediaTek USA makes no representation that MediaTek Inc. will locate or produce any or all documents that are the subject of this request.

REQUEST NO. 5

All technical reference manuals relating to MDDi.

OBJECTIONS AND RESPONSE TO REQUEST NO. 5

MediaTek USA repeats its “Objections to the Instructions in ‘Exhibit A’ to the Subpoena,” “Objections to the ‘Definitions’ in ‘Exhibit A’ to the Subpoena,” and “General Objections to the ‘Document Requests’ in ‘Exhibit A’ to the Subpoena” set forth above.

MediaTek USA further objects to this request as seeking information that is not in the possession, custody, or control of MediaTek USA.

MediaTek USA further objects to this request as unreasonably cumulative or duplicative of other requests. *See* Fed. R. Civ. P. 26(b)(2)(C)(i).

MediaTek USA further objects to this request as being overly broad and unduly burdensome to the extent that it seeks “all” documents of the type identified. See Fed. R. Civ. P. 26(b)(2)(C)(iii).

MediaTek USA further objects to this request as seeking information for which the burden or expense of the proposed discovery outweighs its likely benefit, considering the needs of the case, the amount in controversy, the parties’ resources, the importance of the issues at stake in the action, and the importance of discovery in resolving the issues. See Fed. R. Civ. P. 26(b)(2)(C)(iii).

Subject to its objections and to the extent the request is understood, MediaTek USA responds that MediaTek Inc. will voluntarily undertake a search for representative documents that are responsive to this request, but MediaTek USA makes no representation that MediaTek Inc. will locate or produce any or all documents that are the subject of this request.

REQUEST NO. 6

All documents relating to de-interlacing in the context of MDDi.

OBJECTIONS AND RESPONSE TO REQUEST NO. 6

MediaTek USA repeats its “Objections to the Instructions in ‘Exhibit A’ to the Subpoena,” “Objections to the ‘Definitions’ in ‘Exhibit A’ to the Subpoena,” and “General Objections to the ‘Document Requests’ in ‘Exhibit A’ to the Subpoena” set forth above.

MediaTek USA further objects to this request as seeking information that is not in the possession, custody, or control of MediaTek USA.

MediaTek USA further objects to this request as unreasonably cumulative or duplicative of other requests. See Fed. R. Civ. P. 26(b)(2)(C)(i).

MediaTek USA further objects to this request as being overly broad and unduly burdensome to the extent that it seeks “all” documents of the type identified. See Fed. R. Civ. P. 26(b)(2)(C)(iii).

MediaTek USA further objects to this request as seeking information for which the burden or expense of the proposed discovery outweighs its likely benefit, considering the needs of the case, the amount in controversy, the parties’ resources, the importance of the issues at stake in the action, and the importance of discovery in resolving the issues. See Fed. R. Civ. P. 26(b)(2)(C)(iii).

Subject to its objections and to the extent the request is understood, MediaTek USA responds that MediaTek Inc. will voluntarily undertake a search for representative documents that are

responsive to this request, but MediaTek USA makes no representation that MediaTek Inc. will locate or produce any or all documents that are the subject of this request.

REQUEST NO. 7

All documents relating to noise reduction in the context of MDDi.

OBJECTIONS AND RESPONSE TO REQUEST NO. 7

MediaTek USA repeats its “Objections to the Instructions in ‘Exhibit A’ to the Subpoena,” “Objections to the ‘Definitions’ in ‘Exhibit A’ to the Subpoena,” and “General Objections to the ‘Document Requests’ in ‘Exhibit A’ to the Subpoena” set forth above.

MediaTek USA further objects to this request as seeking information that is not in the possession, custody, or control of MediaTek USA.

MediaTek USA further objects to this request as unreasonably cumulative or duplicative of other requests. *See* Fed. R. Civ. P. 26(b)(2)(C)(i).

MediaTek USA further objects to this request as being overly broad and unduly burdensome to the extent that it seeks “all” documents of the type identified. *See* Fed. R. Civ. P. 26(b)(2)(C)(iii).

MediaTek USA further objects to this request as seeking information for which the burden or expense of the proposed discovery outweighs its likely benefit, considering the needs of the case, the amount in controversy, the parties’ resources, the importance of the issues at stake in the action, and the importance of discovery in resolving the issues. *See* Fed. R. Civ. P. 26(b)(2)(C)(iii).

Subject to its objections and to the extent the request is understood, MediaTek USA responds that MediaTek Inc. will voluntarily undertake a search for representative documents that are responsive to this request, but MediaTek USA makes no representation that MediaTek Inc. will locate or produce any or all documents that are the subject of this request.

REQUEST NO. 8

All documents relating to motion adaptive processing in the context of MDDi.

OBJECTIONS AND RESPONSE TO REQUEST NO. 8

MediaTek USA repeats its “Objections to the Instructions in ‘Exhibit A’ to the Subpoena,” “Objections to the ‘Definitions’ in ‘Exhibit A’ to the Subpoena,” and “General Objections to the ‘Document Requests’ in ‘Exhibit A’ to the Subpoena” set forth above.

MediaTek USA further objects to this request as seeking information that is not in the possession, custody, or control of MediaTek USA.

MediaTek USA further objects to this request as unreasonably cumulative or duplicative of other requests. *See* Fed. R. Civ. P. 26(b)(2)(C)(i).

MediaTek USA further objects to this request as being overly broad and unduly burdensome to the extent that it seeks “all” documents of the type identified. *See* Fed. R. Civ. P. 26(b)(2)(C)(iii).

MediaTek USA further objects to this request as seeking information for which the burden or expense of the proposed discovery outweighs its likely benefit, considering the needs of the case, the amount in controversy, the parties’ resources, the importance of the issues at stake in the action, and the importance of discovery in resolving the issues. *See* Fed. R. Civ. P. 26(b)(2)(C)(iii).

Subject to its objections and to the extent the request is understood, MediaTek USA responds that MediaTek Inc. will voluntarily undertake a search for representative documents that are responsive to this request, but MediaTek USA makes no representation that MediaTek Inc. will locate or produce any or all documents that are the subject of this request.

REQUEST NO. 9

All documents relating to spatial filtering in the context of MIDDi.

OBJECTIONS AND RESPONSE TO REQUEST NO. 9

MediaTek USA repeats its “Objections to the Instructions in ‘Exhibit A’ to the Subpoena,” “Objections to the ‘Definitions’ in ‘Exhibit A’ to the Subpoena,” and “General Objections to the ‘Document Requests’ in ‘Exhibit A’ to the Subpoena” set forth above.

MediaTek USA further objects to this request as seeking information that is not in the possession, custody, or control of MediaTek USA.

MediaTek USA further objects to this request as unreasonably cumulative or duplicative of other requests. *See* Fed. R. Civ. P. 26(b)(2)(C)(i).

MediaTek USA further objects to this request as being overly broad and unduly burdensome to the extent that it seeks “all” documents of the type identified. *See* Fed. R. Civ. P. 26(b)(2)(C)(iii).

MediaTek USA further objects to this request as seeking information for which the burden or expense of the proposed discovery outweighs its likely benefit, considering the needs of the case, the

1 amount in controversy, the parties' resources, the importance of the issues at stake in the action, and
2 the importance of discovery in resolving the issues. *See* Fed. R. Civ. P. 26(b)(2)(C)(iii).

3 Subject to its objections and to the extent the request is understood, MediaTek USA responds
4 that MediaTek Inc. will voluntarily undertake a search for representative documents that are
5 responsive to this request, but MediaTek USA makes no representation that MediaTek Inc. will locate
6 or produce any or all documents that are the subject of this request.

7 **REQUEST NO. 10**

8 All documents relating to temporal filtering in the context of MDDi.

9 **OBJECTIONS AND RESPONSE TO REQUEST NO. 10**

10 MediaTek USA repeats its "Objections to the Instructions in 'Exhibit A' to the Subpoena,"
11 "Objections to the 'Definitions' in 'Exhibit A' to the Subpoena," and "General Objections to the
12 'Document Requests' in 'Exhibit A' to the Subpoena" set forth above.

13 MediaTek USA further objects to this request as seeking information that is not in the
14 possession, custody, or control of MediaTek USA.

15 MediaTek USA further objects to this request as unreasonably cumulative or duplicative of
16 other requests. *See* Fed. R. Civ. P. 26(b)(2)(C)(i).

17 MediaTek USA further objects to this request as being overly broad and unduly burdensome
18 to the extent that it seeks "all" documents of the type identified. *See* Fed. R. Civ. P. 26(b)(2)(C)(iii).

19 MediaTek USA further objects to this request as seeking information for which the burden or
20 expense of the proposed discovery outweighs its likely benefit, considering the needs of the case, the
21 amount in controversy, the parties' resources, the importance of the issues at stake in the action, and
22 the importance of discovery in resolving the issues. *See* Fed. R. Civ. P. 26(b)(2)(C)(iii).

23 Subject to its objections and to the extent the request is understood, MediaTek USA responds
24 that MediaTek Inc. will voluntarily undertake a search for representative documents that are
25 responsive to this request, but MediaTek USA makes no representation that MediaTek Inc. will locate
26 or produce any or all documents that are the subject of this request.

27 **REQUEST NO. 11**

28 All documents relating to video enhancement in the context of MDDi.

OBJECTIONS AND RESPONSE TO REQUEST NO. 11

MediaTek USA repeats its “Objections to the Instructions in ‘Exhibit A’ to the Subpoena,” “Objections to the ‘Definitions’ in ‘Exhibit A’ to the Subpoena,” and “General Objections to the ‘Document Requests’ in ‘Exhibit A’ to the Subpoena” set forth above.

MediaTek USA further objects to this request as seeking information that is not in the possession, custody, or control of MediaTek USA.

MediaTek USA further objects to this request as unreasonably cumulative or duplicative of other requests. *See* Fed. R. Civ. P. 26(b)(2)(C)(i).

MediaTek USA further objects to this request as being overly broad and unduly burdensome to the extent that it seeks “all” documents of the type identified. *See* Fed. R. Civ. P. 26(b)(2)(C)(iii).

MediaTek USA further objects to this request as seeking information for which the burden or expense of the proposed discovery outweighs its likely benefit, considering the needs of the case, the amount in controversy, the parties’ resources, the importance of the issues at stake in the action, and the importance of discovery in resolving the issues. *See* Fed. R. Civ. P. 26(b)(2)(C)(iii).

Subject to its objections and to the extent the request is understood, MediaTek USA responds that MediaTek Inc. will voluntarily undertake a search for representative documents that are responsive to this request, but MediaTek USA makes no representation that MediaTek Inc. will locate or produce any or all documents that are the subject of this request.

REQUEST NO. 12

All documents relating to error correction on an input of interlaced data in the context or MDDi.

OBJECTIONS AND RESPONSE TO REQUEST NO. 12

MediaTek USA repeats its “Objections to the Instructions in ‘Exhibit A’ to the Subpoena,” “Objections to the ‘Definitions’ in ‘Exhibit A’ to the Subpoena,” and “General Objections to the ‘Document Requests’ in ‘Exhibit A’ to the Subpoena” set forth above.

MediaTek USA further objects to this request as seeking information that is not in the possession, custody, or control of MediaTek USA.

MediaTek USA further objects to this request as unreasonably cumulative or duplicative of other requests. *See* Fed. R. Civ. P. 26(b)(2)(C)(i).

MediaTek USA further objects to this request as being overly broad and unduly burdensome to the extent that it seeks “all” documents of the type identified. *See* Fed. R. Civ. P. 26(b)(2)(C)(iii).

MediaTek USA further objects to this request as seeking information for which the burden or expense of the proposed discovery outweighs its likely benefit, considering the needs of the case, the amount in controversy, the parties’ resources, the importance of the issues at stake in the action, and the importance of discovery in resolving the issues. *See* Fed. R. Civ. P. 26(b)(2)(C)(iii).

Subject to its objections and to the extent the request is understood, MediaTek USA responds that MediaTek Inc. will voluntarily undertake a search for representative documents that are responsive to this request, but MediaTek USA makes no representation that MediaTek Inc. will locate or produce any or all documents that are the subject of this request.

REQUEST NO. 13

All documents relating to Second Stage Diagonal Interpolation in the context of MDDi.

OBJECTIONS AND RESPONSE TO REQUEST NO. 13

MediaTek USA repeats its “Objections to the Instructions in ‘Exhibit A’ to the Subpoena,” “Objections to the ‘Definitions’ in ‘Exhibit A’ to the Subpoena,” and “General Objections to the ‘Document Requests’ in ‘Exhibit A’ to the Subpoena” set forth above.

MediaTek USA further objects to this request as seeking information that is not in the possession, custody, or control of MediaTek USA.

MediaTek USA further objects to this request as unreasonably cumulative or duplicative of other requests. *See* Fed. R. Civ. P. 26(b)(2)(C)(i).

MediaTek USA further objects to this request as being overly broad and unduly burdensome to the extent that it seeks “all” documents of the type identified. *See* Fed. R. Civ. P. 26(b)(2)(C)(iii).

MediaTek USA further objects to this request as seeking information for which the burden or expense of the proposed discovery outweighs its likely benefit, considering the needs of the case, the amount in controversy, the parties’ resources, the importance of the issues at stake in the action, and the importance of discovery in resolving the issues. *See* Fed. R. Civ. P. 26(b)(2)(C)(iii).

1 Subject to its objections and to the extent the request is understood, MediaTek USA responds
2 that MediaTek Inc. will voluntarily undertake a search for representative documents that are
3 responsive to this request, but MediaTek USA makes no representation that MediaTek Inc. will locate
4 or produce any or all documents that are the subject of this request.

5 **REQUEST NO. 14**

6 All documents relating to 3:2 Pulldown Detection in the context of MDDi.

7 **OBJECTIONS AND RESPONSE TO REQUEST NO. 14**

8 MediaTek USA repeats its “Objections to the Instructions in ‘Exhibit A’ to the Subpoena,”
9 “Objections to the ‘Definitions’ in ‘Exhibit A’ to the Subpoena,” and “General Objections to the
10 ‘Document Requests’ in ‘Exhibit A’ to the Subpoena” set forth above.

11 MediaTek USA further objects to this request as seeking information that is not in the
12 possession, custody, or control of MediaTek USA.

13 MediaTek USA further objects to this request as unreasonably cumulative or duplicative of
14 other requests. *See* Fed. R. Civ. P. 26(b)(2)(C)(i).

15 MediaTek USA further objects to this request as being overly broad and unduly burdensome
16 to the extent that it seeks “all” documents of the type identified. *See* Fed. R. Civ. P. 26(b)(2)(C)(iii).

17 MediaTek USA further objects to this request as seeking information for which the burden or
18 expense of the proposed discovery outweighs its likely benefit, considering the needs of the case, the
19 amount in controversy, the parties’ resources, the importance of the issues at stake in the action, and
20 the importance of discovery in resolving the issues. *See* Fed. R. Civ. P. 26(b)(2)(C)(iii).

21 Subject to its objections and to the extent the request is understood, MediaTek USA responds
22 that MediaTek Inc. will voluntarily undertake a search for representative documents that are
23 responsive to this request, but MediaTek USA makes no representation that MediaTek Inc. will locate
24 or produce any or all documents that are the subject of this request.

25 **REQUEST NO. 15**

26 All documents relating to bad edit detection and/or correction in the context of MDDi.
27
28

OBJECTIONS AND RESPONSE TO REQUEST NO. 15

MediaTek USA repeats its “Objections to the Instructions in ‘Exhibit A’ to the Subpoena,” “Objections to the ‘Definitions’ in ‘Exhibit A’ to the Subpoena,” and “General Objections to the ‘Document Requests’ in ‘Exhibit A’ to the Subpoena” set forth above.

MediaTek USA further objects to this request as seeking information that is not in the possession, custody, or control of MediaTek USA.

MediaTek USA further objects to this request as unreasonably cumulative or duplicative of other requests. *See* Fed. R. Civ. P. 26(b)(2)(C)(i).

MediaTek USA further objects to this request as being overly broad and unduly burdensome to the extent that it seeks “all” documents of the type identified. *See* Fed. R. Civ. P. 26(b)(2)(C)(iii).

MediaTek USA further objects to this request as seeking information for which the burden or expense of the proposed discovery outweighs its likely benefit, considering the needs of the case, the amount in controversy, the parties’ resources, the importance of the issues at stake in the action, and the importance of discovery in resolving the issues. *See* Fed. R. Civ. P. 26(b)(2)(C)(iii).

Subject to its objections and to the extent the request is understood, MediaTek USA responds that MediaTek Inc. will voluntarily undertake a search for representative documents that are responsive to this request, but MediaTek USA makes no representation that MediaTek Inc. will locate or produce any or all documents that are the subject of this request.

REQUEST NO. 16

All documents relating to entropy or randomness in the context of MDDi.

OBJECTIONS AND RESPONSE TO REQUEST NO. 16

MediaTek USA repeats its “Objections to the Instructions in ‘Exhibit A’ to the Subpoena,” “Objections to the ‘Definitions’ in ‘Exhibit A’ to the Subpoena,” and “General Objections to the ‘Document Requests’ in ‘Exhibit A’ to the Subpoena” set forth above.

MediaTek USA further objects to this request as seeking information that is not in the possession, custody, or control of MediaTek USA.

MediaTek USA further objects to this request as unreasonably cumulative or duplicative of other requests. *See* Fed. R. Civ. P. 26(b)(2)(C)(i).

MediaTek USA further objects to this request as being overly broad and unduly burdensome to the extent that it seeks “all” documents of the type identified. See Fed. R. Civ. P. 26(b)(2)(C)(iii).

MediaTek USA further objects to this request as seeking information for which the burden or expense of the proposed discovery outweighs its likely benefit, considering the needs of the case, the amount in controversy, the parties’ resources, the importance of the issues at stake in the action, and the importance of discovery in resolving the issues. See Fed. R. Civ. P. 26(b)(2)(C)(iii).

Subject to its objections and to the extent the request is understood, MediaTek USA responds that MediaTek Inc. will voluntarily undertake a search for representative documents that are responsive to this request, but MediaTek USA makes no representation that MediaTek Inc. will locate or produce any or all documents that are the subject of this request.

REQUEST NO. 17

All class listings relating to MDDi.

OBJECTIONS AND RESPONSE TO REQUEST NO. 17

MediaTek USA repeats its “Objections to the Instructions in ‘Exhibit A’ to the Subpoena,” “Objections to the ‘Definitions’ in ‘Exhibit A’ to the Subpoena,” and “General Objections to the ‘Document Requests’ in ‘Exhibit A’ to the Subpoena” set forth above.

MediaTek USA further objects to this request as seeking information that is not in the possession, custody, or control of MediaTek USA.

MediaTek USA further objects to this request as unreasonably cumulative or duplicative of other requests. See Fed. R. Civ. P. 26(b)(2)(C)(i).

MediaTek USA further objects to this request as being overly broad and unduly burdensome to the extent that it seeks “all” documents of the type identified. See Fed. R. Civ. P. 26(b)(2)(C)(iii).

MediaTek USA further objects to this request as seeking information for which the burden or expense of the proposed discovery outweighs its likely benefit, considering the needs of the case, the amount in controversy, the parties’ resources, the importance of the issues at stake in the action, and the importance of discovery in resolving the issues. See Fed. R. Civ. P. 26(b)(2)(C)(iii).

Subject to its objections and to the extent the request is understood, MediaTek USA responds that MediaTek Inc. will voluntarily undertake a search for representative documents that are

responsive to this request, but MediaTek USA makes no representation that MediaTek Inc. will locate or produce any or all documents that are the subject of this request.

REQUEST NO. 18

All Unified Modeling Language (UML) diagrams relating to MDDi.

OBJECTIONS AND RESPONSE TO REQUEST NO. 18

MediaTek USA repeats its “Objections to the Instructions in ‘Exhibit A’ to the Subpoena,” “Objections to the ‘Definitions’ in ‘Exhibit A’ to the Subpoena,” and “General Objections to the ‘Document Requests’ in ‘Exhibit A’ to the Subpoena” set forth above.

MediaTek USA further objects to this request as seeking information that is not in the possession, custody, or control of MediaTek USA.

MediaTek USA further objects to this request as unreasonably cumulative or duplicative of other requests. *See* Fed. R. Civ. P. 26(b)(2)(C)(i).

MediaTek USA further objects to this request as being overly broad and unduly burdensome to the extent that it seeks “all” documents of the type identified. *See* Fed. R. Civ. P. 26(b)(2)(C)(iii).

MediaTek USA further objects to this request as seeking information for which the burden or expense of the proposed discovery outweighs its likely benefit, considering the needs of the case, the amount in controversy, the parties’ resources, the importance of the issues at stake in the action, and the importance of discovery in resolving the issues. *See* Fed. R. Civ. P. 26(b)(2)(C)(iii).

Subject to its objections and to the extent the request is understood, MediaTek USA responds that MediaTek Inc. will voluntarily undertake a search for representative documents that are responsive to this request, but MediaTek USA makes no representation that MediaTek Inc. will locate or produce any or all documents that are the subject of this request.

1 Dated: February 28, 2013

/s/ Jason M. Gonder

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Attorneys for Non-Party MediaTek USA Inc.

PROOF OF SERVICE

I hereby certify that on February 28, 2013, I caused to be served on the parties identified below by email and by U.S. mail, first class, postage prepaid, "NON-PARTY MEDIATEK USA INC.'S OBJECTIONS AND RESPONSES TO THE 'SUBPOENA TO PRODUCE DOCUMENTS, INFORMATION, OR OBJECTS OR TO PERMIT INSPECTION OF PREMISES IN A CIVIL ACTION' DATED FEBRUARY 14, 2013, AND ISSUED BY OPLUS TECHNOLOGIES, LTD.":

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Executed this 28th day of February, 2013.

/s/ John M. Hintz

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8 *QUALCOMM INCORPORATED*

9 **UNITED STATES DISTRICT COURT**
10 **FOR THE SOUTHERN DISTRICT OF CALIFORNIA**

11 Oplus Technologies, Ltd.,
12 Plaintiff,

13 vs.

14 Sears Holding Corporation and VIZIO, Inc.,
15 Defendants.

Case No. CV12-5707
(Central District of California)

**NON-PARTY QUALCOMM
INCORPORATED'S RESPONSES
AND OBJECTIONS TO OPLUS
TECHNOLOGIES, LTD.'S
SUBPOENA TO PRODUCE
DOCUMENTS, ETC. AND
SUBPOENA TO TESTIFY AT A
DEPOSITION IN A CIVIL ACTION**

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20 **Preliminary Statement**

21 Qualcomm Incorporated ("Qualcomm"), a non-party to this dispute, provides the
22 following objections and responses to Plaintiff Oplus Technologies, Ltd.'s ("Oplus")
23 Subpoena To Produce Documents, Information, or Objects, Or to Permit Inspection of
24 Premises in a Civil Action and Subpoena To Testify At a Deposition in a Civil Action (the
25 "Subpoenas").

26 The following objections and responses are based solely on the information that is
27 presently available and specifically known to Qualcomm.
28

Qualcomm reserves the right to supplement the following objections and responses, and to change any and all answers herein as additional information is ascertained from Oplus as to the scope and relevance of Oplus' document requests ("requests") and deposition topics ("topics"), as analyses are made of relevant information sought by the Subpoenas, and legal research is completed.

Qualcomm's objections and responses are made without in any way waiving or intending to waive, but, on the contrary, preserving and intending to preserve:

1. All questions as to competency, relevancy, materiality, privilege, and admissibility as evidence for any purpose of the response or subject matter thereof, in any subsequent proceeding in or the trial of this or any other action;

2. The right to object on any ground to the use of said objections and responses, or the subject matter thereof, in any subsequent proceeding in or in the trial of this or any other action; and

3. The right to object on any ground at any time to other discovery procedures involving or relating to the subject matter of the Subpoenas.

General Objections

Qualcomm sets forth its General Objections to Oplus' Subpoenas. These General Objections apply to each and every document request and deposition topic (collectively, "requests") set forth therein whether or not they are specifically set forth in the objections and responses to each request or topic.

1. Qualcomm objects to the requests to the extent they attempt to impose obligations upon Qualcomm, a non-party, beyond those imposed or authorized by the Federal Rules of Civil Procedure, the Federal Rules of Evidence, the Local Rules of the Southern District of California, and any and all other applicable rules.

2. Qualcomm objects to these requests to the extent they seek disclosure of information that is protected by the work product doctrine, the attorney-client privilege, joint-defense or common-interest privilege, or any other applicable privilege, immunity, or protection. Qualcomm hereby asserts all such applicable privileges, immunities, and

1 protections, and excludes privileged, immune, and protected information from its
2 responses to these requests. Any disclosure of privileged, immune, or protected
3 documents and things is inadvertent and shall not be deemed a waiver of any privilege,
4 immunity, or protection.

5 3. Qualcomm objects to the requests to the extent they seek information protected
6 by constitutional, statutory and/or common law rights to personal privacy and
7 confidentiality.

8 4. Qualcomm objects to the subpoenas to as burdensome and oppressive to the
9 extent there are no Qualcomm components in the accused devices.

10 5. Qualcomm objects to the Subpoenas to the extent they purport to require
11 Qualcomm to produce all responsive documents or a witness for deposition by a date
12 certain. Subject to all of the objections stated herein, Qualcomm will not produce
13 documents until it is reasonably practicable to do so.

14 6. Qualcomm objects to the requests to the extent they seek information that is
15 not relevant to the issues in this case, or is not reasonably calculated to lead to the
16 discovery of admissible evidence.

17 7. Qualcomm objects to the requests to the extent they are unreasonably vague,
18 overly broad, repetitious, unduly burdensome, or require the disclosure of information
19 beyond the scope of permissible discovery as allowed, defined, clarified, agreed to, or
20 limited by the Federal Rules of Civil Procedure, the Federal Rules of Evidence, the Local
21 Rules of the Southern District of California, or any and all other applicable rules (the
22 "Rules").

23 8. Qualcomm objects to the requests as imposing undue expense on a non-party
24 to this dispute, and as unduly burdensome and irrelevant to this litigation, especially to the
25 extent they may purport to require search and production from electronic mail systems.

26 9. Qualcomm objects to the requests to the extent they call for information, either
27 electronically stored or stored in hard copy, that is not readily accessible.

28 10. Qualcomm objects to the requests to the extent they call for information not in

1 the possession, custody, or control of Qualcomm.

2 11. Qualcomm objects to the requests to the extent they call for information
3 already in Oplus' possession, custody or control, or information that is publicly available.

4 12. Qualcomm objects to the requests to the extent they call for information that
5 has not first been sought from parties to this dispute or other third parties, including IDT.

6 13. Qualcomm objects to the requests to the extent they call for information that is
7 equally available from parties to this dispute or other third parties, including IDT.

8 14. Qualcomm objects to the requests to the extent that they seek the disclosure of
9 information that Qualcomm is not permitted to disclose pursuant to confidentiality
10 obligations or agreements with non-parties.

11 15. Qualcomm objects to the requests to the extent they call for disclosure of
12 highly confidential and competitively sensitive information, including schematics, source
13 code, object code, firmware, compiled code, byte code, interpreted code or any form of
14 code stored in any storage, absent a protective order calling for the proper protections,
15 including the proper handling of code. Qualcomm cannot provide any such disclosures
16 until such appropriate protections of its highly confidential and competitively sensitive
17 information are in place.

18 16. Qualcomm objects to the requests to the extent that they seek the disclosure of
19 confidential information that is not relevant to this case, including, but not limited to,
20 confidential business information, proprietary and/or competitively sensitive information,
21 and trade secrets.

22 17. Qualcomm generally objects to the scope of the Subpoenas to the extent that it
23 seeks information beyond that regarding any current products that are at issue in this case
24 and which have been sold to any of the defendants, as opposed to any other products that
25 are not relevant.

26 18. Qualcomm objects to the requests to the extent they call for information or
27 documentation concerning products that are sold outside the United States, or which have
28 not been commercialized, or which have not been sold to any of the defendants to this

1 action.

2
3 **Objections to Definitions**

4 1. Qualcomm objects to the terms “VIZIO” and “Defendant” as vague,
5 ambiguous and overly broad to the extent that it purports to seek documents and
6 information beyond the custody and control of Qualcomm Incorporated. For example, it
7 includes in the definition “VIZIO, Inc.,” and “each predecessor business entity, whether
8 incorporated or not, their officers, directors, employees, brokers, agents, attorneys,
9 affiliates, parent corporations, holding companies, subsidiaries, franchisees, licensees, and
10 successors, whether past or present, and all other persons who have acted or purport(ed) to
11 act on their behalf,” all of which are vague, ambiguous, unduly burdensome and overbroad
12 themselves, and which would require Qualcomm to have knowledge of matters beyond its
13 custody and control.

14 2. Qualcomm objects to the term “Qualcomm” as vague, ambiguous and overly
15 broad to the extent that it purports to seek documents and information beyond the custody
16 and control of Qualcomm Incorporated. For example, it includes in the definition
17 “Qualcomm, Inc.” and “each predecessor business entity, whether incorporated or not,
18 their officers, directors, employees, brokers, agents, attorneys, affiliates, parent
19 corporations, holding companies, subsidiaries, franchisees, licensees, and successors,
20 whether past or present, and all other persons who have acted or purport(ed) to act on their
21 behalf,” all of which are vague, ambiguous, unduly burdensome and overbroad
22 themselves, and which would require Qualcomm to have knowledge of matters beyond its
23 custody and control.

24 3. Qualcomm objects to the term “HQV” as vague, ambiguous, overly broad, and
25 unduly burdensome. For example, it includes in the definition other terms such as
26 “Qualcomm’s HQV (Hollywood Quality Video) processing technology,” which are
27 themselves vague, ambiguous and overly broad.

28

1 4. Qualcomm objects to the term "Document(s)," as overly broad and unduly
2 burdensome to the extent these terms purport to impose obligations on Qualcomm beyond
3 the requirements of the Federal Rules of Civil Procedure, the Federal Rules of Evidence,
4 the Local Rules of the Southern District of California, or any and all other applicable rules.
5 Qualcomm will respond to these requests in accordance with the Rules.

6 5. Qualcomm objects to the terms "relate to," "relating to," and "related to," as
7 vague, ambiguous, overly broad, and unduly burdensome. For example, it includes in the
8 definition other terms such as "relevant to, alluding to, responding to, concerning,
9 connected with, commenting on, in respect of, about, regarding, discussing, evidencing,
10 showing, describing, reflecting, analyzing and/or constituting," which are themselves
11 vague, ambiguous and overly broad.

12 **Objections to Instructions**

13 Qualcomm objects to the instructions on "Exhibit A", (1) as vague, ambiguous and
14 overly broad to the extent they rely on any of the other vague, ambiguous and overly broad
15 terms objected to herein and (2) as overly broad and unduly burdensome to the extent they
16 purport to impose obligations on Qualcomm beyond those required by the Federal Rules of
17 Civil Procedure, the Federal Rules of Evidence, the Local Rules of the Southern District of
18 California, or any and all other applicable rules. Qualcomm also objects to the instructions
19 on "Exhibit A" to the extent they purport to require Qualcomm to search for documents
20 and information without regard to constitutional, statutory and/or common law rights to
21 personal privacy and confidentiality, especially in individuals' residences. Qualcomm
22 further objects to the instructions on "Exhibit A" on the grounds that the specified form of
23 production is burdensome, would impose undue costs and burden on a non-party to the
24 action, and would not facilitate appropriate bates labeling and Protective Order
25 designations. Qualcomm does not agree to: produce any documents in response to the
26 Subpoenas in native file format; produce meta-data; or produce schematics and/or source
27 code without further, specific suitable protection of third party source code.

28 //

Specific Objections and Responses to Document Requests

DOCUMENT REQUEST NO. 1:

All specifications relating to HQV.

RESPONSE TO DOCUMENT REQUEST NO. 1:

In addition to its Preliminary Statement, General Objections, Objections to Definitions, and Objections to Instructions, which are hereby incorporated by reference, Qualcomm objects to this request on the grounds that it is overly broad, unduly burdensome, vague, and ambiguous. Qualcomm also objects to this request to the extent that it calls for information that is neither relevant nor reasonably calculated to lead to the discovery of admissible evidence. Qualcomm further objects to the terms "All specifications," and "relating to HQV," as vague, ambiguous and overly broad. Qualcomm objects to this request to the extent it calls for information concerning products that are sold outside the United States. Qualcomm also objects to this request to the extent it calls for information within the public domain or information not in Qualcomm's possession, custody, or control or not reasonably accessible. More specifically, Qualcomm objects to this request on the grounds that it is unduly burdensome to the extent it seeks information from non-party Qualcomm that is equally available and more appropriately obtained from the parties to this action or IDT. Qualcomm further objects to this request to the extent it calls for information containing proprietary, confidential, trade secret, and/or private information. Qualcomm objects to this request on the grounds that it seeks highly confidential and competitively sensitive information that cannot be disclosed until there is a protective order calling for proper protections.

Subject to the foregoing General and Specific Objections, Qualcomm responds as follows: Qualcomm will meet and confer with Oplus in order to narrow the scope of this request and identify the relevant, non-privileged information, if any, Oplus seeks that cannot be obtained from a party to this action.

DOCUMENT REQUEST NO. 2:

All white papers relating to HQV.

RESPONSE TO DOCUMENT REQUEST NO. 2:

In addition to its Preliminary Statement, General Objections, Objections to Definitions, and Objections to Instructions, which are hereby incorporated by reference, Qualcomm objects to this request on the grounds that it is overly broad, unduly burdensome, vague, and ambiguous. Qualcomm also objects to this request to the extent that it calls for information that is neither relevant nor reasonably calculated to lead to the discovery of admissible evidence. Qualcomm further objects to the terms “All white papers,” and “relating to HQV,” as vague, ambiguous and overly broad. Qualcomm objects to this request to the extent it calls for information concerning products that are sold outside the United States. Qualcomm also objects to this request to the extent it calls for information within the public domain or information not in Qualcomm’s possession, custody, or control or not reasonably accessible. More specifically, Qualcomm objects to this request on the grounds that it is unduly burdensome to the extent it seeks information from non-party Qualcomm that is equally available and more appropriately obtained from the parties to this action or IDT. Qualcomm further objects to this request to the extent it calls for information containing proprietary, confidential, trade secret, and/or private information. Qualcomm objects to this request on the grounds that it seeks highly confidential and competitively sensitive information that cannot be disclosed until there is a protective order calling for proper protections.

Subject to the foregoing General and Specific Objections, Qualcomm responds as follows: Qualcomm will meet and confer with Oplus in order to narrow the scope of this request and identify the relevant, non-privileged information, if any, Oplus seeks that cannot be obtained from a party to this action or IDT.

DOCUMENT REQUEST NO. 3:

All flow charts relating to HQV.

RESPONSE TO DOCUMENT REQUEST NO. 3:

In addition to its Preliminary Statement, General Objections, Objections to Definitions, and Objections to Instructions, which are hereby incorporated by reference,

Qualcomm objects to this request on the grounds that it is overly broad, unduly burdensome, vague, and ambiguous. Qualcomm also objects to this request to the extent that it calls for information that is neither relevant nor reasonably calculated to lead to the discovery of admissible evidence. Qualcomm further objects to the terms “All flow charts,” and “relating to HQV,” as vague, ambiguous and overly broad. Qualcomm objects to this request to the extent it calls for information concerning products that are sold outside the United States. Qualcomm also objects to this request to the extent it calls for information within the public domain or information not in Qualcomm’s possession, custody, or control or not reasonably accessible. More specifically, Qualcomm objects to this request on the grounds that it is unduly burdensome to the extent it seeks information from non-party Qualcomm that is equally available and more appropriately obtained from the parties to this action or IDT. Qualcomm further objects to this request to the extent it calls for information containing proprietary, confidential, trade secret, and/or private information. Qualcomm objects to this request on the grounds that it seeks highly confidential and competitively sensitive information that cannot be disclosed until there is a protective order calling for proper protections.

Subject to the foregoing General and Specific Objections, Qualcomm responds as follows: Qualcomm will meet and confer with Oplus in order to narrow the scope of this request and identify the relevant, non-privileged information, if any, Oplus seeks that cannot be obtained from a party to this action or IDT.

DOCUMENT REQUEST NO. 4:

All block diagrams relating to HQV.

RESPONSE TO DOCUMENT REQUEST NO. 4:

In addition to its Preliminary Statement, General Objections, Objections to Definitions, and Objections to Instructions, which are hereby incorporated by reference, Qualcomm objects to this request on the grounds that it is overly broad, unduly burdensome, vague, and ambiguous. Qualcomm also objects to this request to the extent that it calls for information that is neither relevant nor reasonably calculated to lead to the

1 discovery of admissible evidence. Qualcomm further objects to the terms “All block
2 diagrams,” and “relating to HQV,” as vague, ambiguous and overly broad. Qualcomm
3 objects to this request to the extent it calls for information concerning products that are
4 sold outside the United States. Qualcomm also objects to this request to the extent it calls
5 for information within the public domain or information not in Qualcomm’s possession,
6 custody, or control or not reasonably accessible. More specifically, Qualcomm objects to
7 this request on the grounds that it is unduly burdensome to the extent it seeks information
8 from non-party Qualcomm that is equally available and more appropriately obtained from
9 the parties to this action or IDT. Qualcomm further objects to this request to the extent it
10 calls for information containing proprietary, confidential, trade secret, and/or private
11 information. Qualcomm objects to this request on the grounds that it seeks highly
12 confidential and competitively sensitive information that cannot be disclosed until there is
13 a protective order calling for proper protections.

14 Subject to the foregoing General and Specific Objections, Qualcomm responds as
15 follows: Qualcomm will meet and confer with Oplus in order to narrow the scope of this
16 request and identify the relevant, non-privileged information, if any, Oplus seeks that
17 cannot be obtained from a party to this action or IDT.

18 **DOCUMENT REQUEST NO. 5:**

19 All technical reference manuals relating to HQV.

20 **RESPONSE TO DOCUMENT REQUEST NO. 5:**

21 In addition to its Preliminary Statement, General Objections, Objections to
22 Definitions, and Objections to Instructions, which are hereby incorporated by reference,
23 Qualcomm objects to this request on the grounds that it is overly broad, unduly
24 burdensome, vague, and ambiguous. Qualcomm also objects to this request to the extent
25 that it calls for information that is neither relevant nor reasonably calculated to lead to the
26 discovery of admissible evidence. Qualcomm further objects to the terms “All technical
27 reference manuals,” and “relating to HQV,” as vague, ambiguous and overly broad.
28 Qualcomm objects to this request to the extent it calls for information concerning products

1 that are sold outside the United States. Qualcomm also objects to this request to the extent
2 it calls for information within the public domain or information not in Qualcomm's
3 possession, custody, or control or not reasonably accessible. More specifically, Qualcomm
4 objects to this request on the grounds that it is unduly burdensome to the extent it seeks
5 information from non-party Qualcomm that is equally available and more appropriately
6 obtained from the parties to this action or IDT. Qualcomm further objects to this request
7 to the extent it calls for information containing proprietary, confidential, trade secret,
8 and/or private information. Qualcomm objects to this request on the grounds that it seeks
9 highly confidential and competitively sensitive information that cannot be disclosed until
10 there is a protective order calling for proper protections.

11 Subject to the foregoing General and Specific Objections, Qualcomm responds as
12 follows: Qualcomm will meet and confer with Oplus in order to narrow the scope of this
13 request and identify the relevant, non-privileged information, if any, Oplus seeks that
14 cannot be obtained from a party to this action or IDT.

15 **DOCUMENT REQUEST NO. 6:**

16 All documents relating to the algorithms used in the context of HQV.

17 **RESPONSE TO DOCUMENT REQUEST NO. 6:**

18 In addition to its Preliminary Statement, General Objections, Objections to
19 Definitions, and Objections to Instructions, which are hereby incorporated by reference,
20 Qualcomm objects to this request on the grounds that it is overly broad, unduly
21 burdensome, vague, and ambiguous. Qualcomm also objects to this request to the extent
22 that it calls for information that is neither relevant nor reasonably calculated to lead to the
23 discovery of admissible evidence. Qualcomm further objects to the terms "All
24 documents," "relating to," "algorithms used," and "in the context of HQV," as vague,
25 ambiguous and overly broad. Qualcomm objects to this request to the extent it calls for
26 information concerning products that are sold outside the United States. Qualcomm also
27 objects to this request to the extent it calls for information within the public domain or
28 information not in Qualcomm's possession, custody, or control or not reasonably

1 accessible. More specifically, Qualcomm objects to this request on the grounds that it is
2 unduly burdensome to the extent it seeks information from non-party Qualcomm that is
3 equally available and more appropriately obtained from the parties to this action or IDT.
4 Qualcomm objects to this request to the extent it seeks disclosure of information that is
5 protected by the attorney work product doctrine, the attorney-client privilege, joint-defense
6 or common-interest privilege, or any other applicable privilege, immunity, or protection.
7 Qualcomm further objects to this request to the extent it calls for information containing
8 proprietary, confidential, trade secret, and/or private information. Qualcomm objects to
9 this request on the grounds that it seeks highly confidential and competitively sensitive
10 information that cannot be disclosed until there is a protective order calling for proper
11 protections.

12 Subject to the foregoing General and Specific Objections, Qualcomm responds as
13 follows: Qualcomm will meet and confer with Oplus in order to narrow the scope of this
14 request and identify the relevant, non-privileged information, if any, Oplus seeks that
15 cannot be obtained from a party to this action or IDT.

16 **DOCUMENT REQUEST NO. 7:**

17 All documents relating to de-interlacing in the context of HQV.

18 **RESPONSE TO DOCUMENT REQUEST NO. 7:**

19 In addition to its Preliminary Statement, General Objections, Objections to
20 Definitions, and Objections to Instructions, which are hereby incorporated by reference,
21 Qualcomm objects to this request on the grounds that it is overly broad, unduly
22 burdensome, vague, and ambiguous. Qualcomm also objects to this request to the extent
23 that it calls for information that is neither relevant nor reasonably calculated to lead to the
24 discovery of admissible evidence. Qualcomm further objects to the terms "All
25 documents," "relating to," "de-interlacing," and "in the context of HQV," as vague,
26 ambiguous and overly broad. Qualcomm objects to this request to the extent it calls for
27 information concerning products that are sold outside the United States. Qualcomm also
28 objects to this request to the extent it calls for information within the public domain or

1 information not in Qualcomm's possession, custody, or control or not reasonably
2 accessible. More specifically, Qualcomm objects to this request on the grounds that it is
3 unduly burdensome to the extent it seeks information from non-party Qualcomm that is
4 equally available and more appropriately obtained from the parties to this action or IDT.
5 Qualcomm objects to this request to the extent it seeks disclosure of information that is
6 protected by the attorney work product doctrine, the attorney-client privilege, joint-defense
7 or common-interest privilege, or any other applicable privilege, immunity, or protection.
8 Qualcomm further objects to this request to the extent it calls for information containing
9 proprietary, confidential, trade secret, and/or private information. Qualcomm objects to
10 this request on the grounds that it seeks highly confidential and competitively sensitive
11 information that cannot be disclosed until there is a protective order calling for proper
12 protections.

13 Subject to the foregoing General and Specific Objections, Qualcomm responds as
14 follows: Qualcomm will meet and confer with Oplus in order to narrow the scope of this
15 request and identify the relevant, non-privileged information, if any, Oplus seeks that
16 cannot be obtained from a party to this action or IDT.

17 **DOCUMENT REQUEST NO. 8:**

18 All documents relating to noise reduction in the context of HQV.

19 **RESPONSE TO DOCUMENT REQUEST NO. 8:**

20 In addition to its Preliminary Statement, General Objections, Objections to
21 Definitions, and Objections to Instructions, which are hereby incorporated by reference,
22 Qualcomm objects to this request on the grounds that it is overly broad, unduly
23 burdensome, vague, and ambiguous. Qualcomm also objects to this request to the extent
24 that it calls for information that is neither relevant nor reasonably calculated to lead to the
25 discovery of admissible evidence. Qualcomm further objects to the terms "All
26 documents," "relating to," "noise reduction," and "in the context of HQV," as vague,
27 ambiguous and overly broad. Qualcomm objects to this request to the extent it calls for
28 information concerning products that are sold outside the United States. Qualcomm also

1 objects to this request to the extent it calls for information within the public domain or
2 information not in Qualcomm's possession, custody, or control or not reasonably
3 accessible. More specifically, Qualcomm objects to this request on the grounds that it is
4 unduly burdensome to the extent it seeks information from non-party Qualcomm that is
5 equally available and more appropriately obtained from the parties to this action or IDT.
6 Qualcomm objects to this request to the extent it seeks disclosure of information that is
7 protected by the attorney work product doctrine, the attorney-client privilege, joint-defense
8 or common-interest privilege, or any other applicable privilege, immunity, or protection.
9 Qualcomm further objects to this request to the extent it calls for information containing
10 proprietary, confidential, trade secret, and/or private information. Qualcomm objects to
11 this request on the grounds that it seeks highly confidential and competitively sensitive
12 information that cannot be disclosed until there is a protective order calling for proper
13 protections.

14 Subject to the foregoing General and Specific Objections, Qualcomm responds as
15 follows: Qualcomm will meet and confer with Oplus in order to narrow the scope of this
16 request and identify the relevant, non-privileged information, if any, Oplus seeks that
17 cannot be obtained from a party to this action or IDT.

18 **DOCUMENT REQUEST NO. 9:**

19 All documents relating to motion adaptive processing in the context of HQV.

20 **RESPONSE TO DOCUMENT REQUEST NO. 9:**

21 In addition to its Preliminary Statement, General Objections, Objections to
22 Definitions, and Objections to Instructions, which are hereby incorporated by reference,
23 Qualcomm objects to this request on the grounds that it is overly broad, unduly
24 burdensome, vague, and ambiguous. Qualcomm also objects to this request to the extent
25 that it calls for information that is neither relevant nor reasonably calculated to lead to the
26 discovery of admissible evidence. Qualcomm further objects to the terms "All
27 documents," "relating to," "motion adaptive processing," and "in the context of HQV," as
28 vague, ambiguous and overly broad. Qualcomm objects to this request to the extent it calls

1 for information concerning products that are sold outside the United States. Qualcomm
2 also objects to this request to the extent it calls for information within the public domain or
3 information not in Qualcomm's possession, custody, or control or not reasonably
4 accessible. More specifically, Qualcomm objects to this request on the grounds that it is
5 unduly burdensome to the extent it seeks information from non-party Qualcomm that is
6 equally available and more appropriately obtained from the parties to this action or IDT.
7 Qualcomm objects to this request to the extent it seeks disclosure of information that is
8 protected by the attorney work product doctrine, the attorney-client privilege, joint-defense
9 or common-interest privilege, or any other applicable privilege, immunity, or protection.
10 Qualcomm further objects to this request to the extent it calls for information containing
11 proprietary, confidential, trade secret, and/or private information. Qualcomm objects to
12 this request on the grounds that it seeks highly confidential and competitively sensitive
13 information that cannot be disclosed until there is a protective order calling for proper
14 protections.

15 Subject to the foregoing General and Specific Objections, Qualcomm responds as
16 follows: Qualcomm will meet and confer with Oplus in order to narrow the scope of this
17 request and identify the relevant, non-privileged information, if any, Oplus seeks that
18 cannot be obtained from a party to this action or IDT.

19 **DOCUMENT REQUEST NO. 10:**

20 All documents relating to spatial filtering in the context of HQV.

21 **RESPONSE TO DOCUMENT REQUEST NO. 10:**

22 In addition to its Preliminary Statement, General Objections, Objections to
23 Definitions, and Objections to Instructions, which are hereby incorporated by reference,
24 Qualcomm objects to this request on the grounds that it is overly broad, unduly
25 burdensome, vague, and ambiguous. Qualcomm also objects to this request to the extent
26 that it calls for information that is neither relevant nor reasonably calculated to lead to the
27 discovery of admissible evidence. Qualcomm further objects to the terms "All
28 documents," "relating to," "spatial filtering," and "in the context of HQV," as vague,

1 ambiguous and overly broad. Qualcomm objects to this request to the extent it calls for
2 information concerning products that are sold outside the United States. Qualcomm also
3 objects to this request to the extent it calls for information within the public domain or
4 information not in Qualcomm's possession, custody, or control or not reasonably
5 accessible. More specifically, Qualcomm objects to this request on the grounds that it is
6 unduly burdensome to the extent it seeks information from non-party Qualcomm that is
7 equally available and more appropriately obtained from the parties to this action or IDT.
8 Qualcomm objects to this request to the extent it seeks disclosure of information that is
9 protected by the attorney work product doctrine, the attorney-client privilege, joint-defense
10 or common-interest privilege, or any other applicable privilege, immunity, or protection.
11 Qualcomm further objects to this request to the extent it calls for information containing
12 proprietary, confidential, trade secret, and/or private information. Qualcomm objects to
13 this request on the grounds that it seeks highly confidential and competitively sensitive
14 information that cannot be disclosed until there is a protective order calling for proper
15 protections.

16 Subject to the foregoing General and Specific Objections, Qualcomm responds as
17 follows: Qualcomm will meet and confer with Oplus in order to narrow the scope of this
18 request and identify the relevant, non-privileged information, if any, Oplus seeks that
19 cannot be obtained from a party to this action or IDT.

20 **DOCUMENT REQUEST NO. 11:**

21 All documents relating to temporal filtering in the context of HQV.

22 **RESPONSE TO DOCUMENT REQUEST NO. 11:**

23 In addition to its Preliminary Statement, General Objections, Objections to
24 Definitions, and Objections to Instructions, which are hereby incorporated by reference,
25 Qualcomm objects to this request on the grounds that it is overly broad, unduly
26 burdensome, vague, and ambiguous. Qualcomm also objects to this request to the extent
27 that it calls for information that is neither relevant nor reasonably calculated to lead to the
28 discovery of admissible evidence. Qualcomm further objects to the terms "All

documents,” “relating to,” “temporal filtering,” and “in the context of HQV,” as vague, ambiguous and overly broad. Qualcomm objects to this request to the extent it calls for information concerning products that are sold outside the United States. Qualcomm also objects to this request to the extent it calls for information within the public domain or information not in Qualcomm’s possession, custody, or control or not reasonably accessible. More specifically, Qualcomm objects to this request on the grounds that it is unduly burdensome to the extent it seeks information from non-party Qualcomm that is equally available and more appropriately obtained from the parties to this action or IDT. Qualcomm objects to this request to the extent it seeks disclosure of information that is protected by the attorney work product doctrine, the attorney-client privilege, joint-defense or common-interest privilege, or any other applicable privilege, immunity, or protection. Qualcomm further objects to this request to the extent it calls for information containing proprietary, confidential, trade secret, and/or private information. Qualcomm objects to this request on the grounds that it seeks highly confidential and competitively sensitive information that cannot be disclosed until there is a protective order calling for proper protections.

Subject to the foregoing General and Specific Objections, Qualcomm responds as follows: Qualcomm will meet and confer with Oplus in order to narrow the scope of this request and identify the relevant, non-privileged information, if any, Oplus seeks that cannot be obtained from a party to this action or IDT.

DOCUMENT REQUEST NO. 12:

All documents relating to video enhancement in the context of HQV.

RESPONSE TO DOCUMENT REQUEST NO. 12:

In addition to its Preliminary Statement, General Objections, Objections to Definitions, and Objections to Instructions, which are hereby incorporated by reference, Qualcomm objects to this request on the grounds that it is overly broad, unduly burdensome, vague, and ambiguous. Qualcomm also objects to this request to the extent that it calls for information that is neither relevant nor reasonably calculated to lead to the

1 discovery of admissible evidence. Qualcomm further objects to the terms “All
2 documents,” “relating to,” “video enhancement,” and “in the context of HQV,” as vague,
3 ambiguous and overly broad. Qualcomm objects to this request to the extent it calls for
4 information concerning products that are sold outside the United States. Qualcomm also
5 objects to this request to the extent it calls for information within the public domain or
6 information not in Qualcomm’s possession, custody, or control or not reasonably
7 accessible. More specifically, Qualcomm objects to this request on the grounds that it is
8 unduly burdensome to the extent it seeks information from non-party Qualcomm that is
9 equally available and more appropriately obtained from the parties to this action or IDT.
10 Qualcomm objects to this request to the extent it seeks disclosure of information that is
11 protected by the attorney work product doctrine, the attorney-client privilege, joint-defense
12 or common-interest privilege, or any other applicable privilege, immunity, or protection.
13 Qualcomm further objects to this request to the extent it calls for information containing
14 proprietary, confidential, trade secret, and/or private information. Qualcomm objects to
15 this request on the grounds that it seeks highly confidential and competitively sensitive
16 information that cannot be disclosed until there is a protective order calling for proper
17 protections.

18 Subject to the foregoing General and Specific Objections, Qualcomm responds as
19 follows: Qualcomm will meet and confer with Oplus in order to narrow the scope of this
20 request and identify the relevant, non-privileged information, if any, Oplus seeks that
21 cannot be obtained from a party to this action.

22 **DOCUMENT REQUEST NO. 13:**

23 All documents relating to error correction on an input of interlaced data in the
24 context of HQV.

25 **RESPONSE TO DOCUMENT REQUEST NO. 13:**

26 In addition to its Preliminary Statement, General Objections, Objections to
27 Definitions, and Objections to Instructions, which are hereby incorporated by reference,
28 Qualcomm objects to this request on the grounds that it is overly broad, unduly

1 burdensome, vague, and ambiguous. Qualcomm also objects to this request to the extent
2 that it calls for information that is neither relevant nor reasonably calculated to lead to the
3 discovery of admissible evidence. Qualcomm further objects to the terms "All
4 documents," "relating to," "error correction on an input of interlaced data," and "in the
5 context of HQV," as vague, ambiguous and overly broad. Qualcomm objects to this
6 request to the extent it calls for information concerning products that are sold outside the
7 United States. Qualcomm also objects to this request to the extent it calls for information
8 within the public domain or information not in Qualcomm's possession, custody, or
9 control or not reasonably accessible. More specifically, Qualcomm objects to this request
10 on the grounds that it is unduly burdensome to the extent it seeks information from non-
11 party Qualcomm that is equally available and more appropriately obtained from the parties
12 to this action. Qualcomm objects to this request to the extent it seeks disclosure of
13 information that is protected by the attorney work product doctrine, the attorney-client
14 privilege, joint-defense or common-interest privilege, or any other applicable privilege,
15 immunity, or protection. Qualcomm further objects to this request to the extent it calls for
16 information containing proprietary, confidential, trade secret, and/or private information.
17 Qualcomm objects to this request on the grounds that it seeks highly confidential and
18 competitively sensitive information that cannot be disclosed until there is a protective
19 order calling for proper protections.

20 Subject to the foregoing General and Specific Objections, Qualcomm responds as
21 follows: Qualcomm will meet and confer with Oplus in order to narrow the scope of this
22 request and identify the relevant, non-privileged information, if any, Oplus seeks that
23 cannot be obtained from a party to this action or IDT.

24 **DOCUMENT REQUEST NO. 14:**

25 All documents relating to Second Stage Diagonal Interpolation in the context of
26 HQV.

27 **RESPONSE TO DOCUMENT REQUEST NO. 14:**

28 In addition to its Preliminary Statement, General Objections, Objections to

1 Definitions, and Objections to Instructions, which are hereby incorporated by reference,
2 Qualcomm objects to this request on the grounds that it is overly broad, unduly
3 burdensome, vague, and ambiguous. Qualcomm also objects to this request to the extent
4 that it calls for information that is neither relevant nor reasonably calculated to lead to the
5 discovery of admissible evidence. Qualcomm further objects to the terms "All
6 documents," "relating to," "Second Stage Diagonal Interpolation," and "in the context of
7 HQV," as vague, ambiguous and overly broad. Qualcomm objects to this request to the
8 extent it calls for information concerning products that are sold outside the United States.
9 Qualcomm also objects to this request to the extent it calls for information within the
10 public domain or information not in Qualcomm's possession, custody, or control or not
11 reasonably accessible. More specifically, Qualcomm objects to this request on the grounds
12 that it is unduly burdensome to the extent it seeks information from non-party Qualcomm
13 that is equally available and more appropriately obtained from the parties to this action or
14 IDT. Qualcomm objects to this request to the extent it seeks disclosure of information that
15 is protected by the attorney work product doctrine, the attorney-client privilege, joint-
16 defense or common-interest privilege, or any other applicable privilege, immunity, or
17 protection. Qualcomm further objects to this request to the extent it calls for information
18 containing proprietary, confidential, trade secret, and/or private information. Qualcomm
19 objects to this request on the grounds that it seeks highly confidential and competitively
20 sensitive information that cannot be disclosed until there is a protective order calling for
21 proper protections.

22 Subject to the foregoing General and Specific Objections, Qualcomm responds as
23 follows: Qualcomm will meet and confer with Oplus in order to narrow the scope of this
24 request and identify the relevant, non-privileged information, if any, Oplus seeks that
25 cannot be obtained from a party to this action or IDT.

26 **DOCUMENT REQUEST NO. 15:**

27 All documents relating to 3:2 Pulldown Detection in the context of HQV.

28 **RESPONSE TO DOCUMENT REQUEST NO. 15:**

1 In addition to its Preliminary Statement, General Objections, Objections to
2 Definitions, and Objections to Instructions, which are hereby incorporated by reference,
3 Qualcomm objects to this request on the grounds that it is overly broad, unduly
4 burdensome, vague, and ambiguous. Qualcomm also objects to this request to the extent
5 that it calls for information that is neither relevant nor reasonably calculated to lead to the
6 discovery of admissible evidence. Qualcomm further objects to the terms "All
7 documents," "relating to," "3:2 Pulldown Detection," and "in the context of HQV," as
8 vague, ambiguous and overly broad. Qualcomm objects to this request to the extent it calls
9 for information concerning products that are sold outside the United States. Qualcomm
10 also objects to this request to the extent it calls for information within the public domain or
11 information not in Qualcomm's possession, custody, or control or not reasonably
12 accessible. More specifically, Qualcomm objects to this request on the grounds that it is
13 unduly burdensome to the extent it seeks information from non-party Qualcomm that is
14 equally available and more appropriately obtained from the parties to this action or IDT.
15 Qualcomm objects to this request to the extent it seeks disclosure of information that is
16 protected by the attorney work product doctrine, the attorney-client privilege, joint-defense
17 or common-interest privilege, or any other applicable privilege, immunity, or protection.
18 Qualcomm further objects to this request to the extent it calls for information containing
19 proprietary, confidential, trade secret, and/or private information. Qualcomm objects to
20 this request on the grounds that it seeks highly confidential and competitively sensitive
21 information that cannot be disclosed until there is a protective order calling for proper
22 protections.

23 Subject to the foregoing General and Specific Objections, Qualcomm responds as
24 follows: Qualcomm will meet and confer with Oplus in order to narrow the scope of this
25 request and identify the relevant, non-privileged information, if any, Oplus seeks that
26 cannot be obtained from a party to this action or IDT.

27 **DOCUMENT REQUEST NO. 16:**

28 All documents relating to bad edit detection and/or correction in the context of

1 HQV.

2 **RESPONSE TO DOCUMENT REQUEST NO. 16:**

3 In addition to its Preliminary Statement, General Objections, Objections to
4 Definitions, and Objections to Instructions, which are hereby incorporated by reference,
5 Qualcomm objects to this request on the grounds that it is overly broad, unduly
6 burdensome, vague, and ambiguous. Qualcomm also objects to this request to the extent
7 that it calls for information that is neither relevant nor reasonably calculated to lead to the
8 discovery of admissible evidence. Qualcomm further objects to the terms "All
9 documents," "relating to," "bad edit detection and/or correction," and "in the context of
10 HQV," as vague, ambiguous and overly broad. Qualcomm objects to this request to the
11 extent it calls for information concerning products that are sold outside the United States.
12 Qualcomm also objects to this request to the extent it calls for information within the
13 public domain or information not in Qualcomm's possession, custody, or control or not
14 reasonably accessible. More specifically, Qualcomm objects to this request on the grounds
15 that it is unduly burdensome to the extent it seeks information from non-party Qualcomm
16 that is equally available and more appropriately obtained from the parties to this action or
17 IDT. Qualcomm objects to this request to the extent it seeks disclosure of information that
18 is protected by the attorney work product doctrine, the attorney-client privilege, joint-
19 defense or common-interest privilege, or any other applicable privilege, immunity, or
20 protection. Qualcomm further objects to this request to the extent it calls for information
21 containing proprietary, confidential, trade secret, and/or private information. Qualcomm
22 objects to this request on the grounds that it seeks highly confidential and competitively
23 sensitive information that cannot be disclosed until there is a protective order calling for
24 proper protections.

25 Subject to the foregoing General and Specific Objections, Qualcomm responds as
26 follows: Qualcomm will meet and confer with Oplus in order to narrow the scope of this
27 request and identify the relevant, non-privileged information, if any, Oplus seeks that
28 cannot be obtained from a party to this action or IDT.

1 **DOCUMENT REQUEST NO. 17:**

2 All documents relating to entropy or randomness in the context of HQV.

3
4 **RESPONSE TO DOCUMENT REQUEST NO. 17:**

5 In addition to its Preliminary Statement, General Objections, Objections to
6 Definitions, and Objections to Instructions, which are hereby incorporated by reference,
7 Qualcomm objects to this request on the grounds that it is overly broad, unduly
8 burdensome, vague, and ambiguous. Qualcomm also objects to this request to the extent
9 that it calls for information that is neither relevant nor reasonably calculated to lead to the
10 discovery of admissible evidence. Qualcomm further objects to the terms "All
11 documents," "relating to," "entropy or randomness," and "in the context of HQV," as
12 vague, ambiguous and overly broad. Qualcomm objects to this request to the extent it calls
13 for information concerning products that are sold outside the United States. Qualcomm
14 also objects to this request to the extent it calls for information within the public domain or
15 information not in Qualcomm's possession, custody, or control or not reasonably
16 accessible. More specifically, Qualcomm objects to this request on the grounds that it is
17 unduly burdensome to the extent it seeks information from non-party Qualcomm that is
18 equally available and more appropriately obtained from the parties to this action or IDT.
19 Qualcomm objects to this request to the extent it seeks disclosure of information that is
20 protected by the attorney work product doctrine, the attorney-client privilege, joint-defense
21 or common-interest privilege, or any other applicable privilege, immunity, or protection.
22 Qualcomm further objects to this request to the extent it calls for information containing
23 proprietary, confidential, trade secret, and/or private information. Qualcomm objects to
24 this request on the grounds that it seeks highly confidential and competitively sensitive
25 information that cannot be disclosed until there is a protective order calling for proper
26 protections.

27 Subject to the foregoing General and Specific Objections, Qualcomm responds as
28 follows: Qualcomm will meet and confer with Oplus in order to narrow the scope of this

1 request and identify the relevant, non-privileged information, if any, Oplus seeks that
2 cannot be obtained from a party to this action or IDT.

3
4 **DOCUMENT REQUEST NO. 18:**

5 All class listings relating to HQV.

6 **RESPONSE TO DOCUMENT REQUEST NO. 18:**

7 In addition to its Preliminary Statement, General Objections, Objections to
8 Definitions, and Objections to Instructions, which are hereby incorporated by reference,
9 Qualcomm objects to this request on the grounds that it is overly broad, unduly
10 burdensome, vague, and ambiguous. Qualcomm also objects to this request to the extent
11 that it calls for information that is neither relevant nor reasonably calculated to lead to the
12 discovery of admissible evidence. Qualcomm further objects to the terms "All class
13 listings," and "relating to HQV," as vague, ambiguous and overly broad. Qualcomm
14 objects to this request to the extent it calls for information concerning products that are
15 sold outside the United States. Qualcomm also objects to this request to the extent it calls
16 for information within the public domain or information not in Qualcomm's possession,
17 custody, or control or not reasonably accessible. More specifically, Qualcomm objects to
18 this request on the grounds that it is unduly burdensome to the extent it seeks information
19 from non-party Qualcomm that is equally available and more appropriately obtained from
20 the parties to this action or IDT. Qualcomm further objects to this request to the extent it
21 calls for information containing proprietary, confidential, trade secret, and/or private
22 information. Qualcomm objects to this request on the grounds that it seeks highly
23 confidential and competitively sensitive information that cannot be disclosed until there is
24 a protective order calling for proper protections.

25 Subject to the foregoing General and Specific Objections, Qualcomm responds as
26 follows: Qualcomm will meet and confer with Oplus in order to narrow the scope of this
27 request and identify the relevant, non-privileged information, if any, Oplus seeks that
28 cannot be obtained from a party to this action or IDT.

1 **DOCUMENT REQUEST NO. 19:**

2 All Unified Modeling Language (UML) diagrams relating to HQV.

3
4 **RESPONSE TO DOCUMENT REQUEST NO. 19:**

5 In addition to its Preliminary Statement, General Objections, Objections to
6 Definitions, and Objections to Instructions, which are hereby incorporated by reference,
7 Qualcomm objects to this request on the grounds that it is overly broad, unduly
8 burdensome, vague, and ambiguous. Qualcomm also objects to this request to the extent
9 that it calls for information that is neither relevant nor reasonably calculated to lead to the
10 discovery of admissible evidence. Qualcomm further objects to the terms "All Unified
11 Modeling Language (UML)," and "relating to HQV," as vague, ambiguous and overly
12 broad. Qualcomm objects to this request to the extent it calls for information concerning
13 products that are sold outside the United States. Qualcomm also objects to this request to
14 the extent it calls for information within the public domain or information not in
15 Qualcomm's possession, custody, or control or not reasonably accessible. More
16 specifically, Qualcomm objects to this request on the grounds that it is unduly burdensome
17 to the extent it seeks information from non-party Qualcomm that is equally available and
18 more appropriately obtained from the parties to this action or IDT. Qualcomm further
19 objects to this request to the extent it calls for information containing proprietary,
20 confidential, trade secret, and/or private information. Qualcomm objects to this request on
21 the grounds that it seeks highly confidential and competitively sensitive information that
22 cannot be disclosed until there is a protective order calling for proper protections.

23 Subject to the foregoing General and Specific Objections, Qualcomm responds as
24 follows: Qualcomm will meet and confer with Oplus in order to narrow the scope of this
25 request and identify the relevant, non-privileged information, if any, Oplus seeks that
26 cannot be obtained from a party to this action or IDT.

27
28 ////

Specific Objections and Responses to Deposition Topics

DEPOSITION TOPIC NO. 1:

The process of deinterlacing, and all steps involved therein, as it is performed by HQV.

RESPONSE TO DEPOSITION TOPIC NO. 1:

In addition to its Preliminary Statement, General Objections, Objections to Definitions, and Objections to Instructions, which are hereby incorporated by reference, Qualcomm objects to this topic on the grounds that it is overly broad, unduly burdensome, vague, and ambiguous. Qualcomm also objects to this topic to the extent that it calls for information that is neither relevant nor reasonably calculated to lead to the discovery of admissible evidence. Qualcomm further objects to the terms “The process of deinterlacing,” “and all steps involved therein,” and “as it is performed by HQV,” as vague, ambiguous and overly broad. Qualcomm objects to this topic to the extent it calls for information concerning products that are sold outside the United States. Qualcomm also objects to this topic to the extent it calls for information within the public domain or information not in Qualcomm’s possession, custody, or control or not reasonably accessible. More specifically, Qualcomm objects to this topic on the grounds that it is unduly burdensome to the extent it seeks information from non-party Qualcomm that is equally available and more appropriately obtained from the parties to this action or IDT. Qualcomm further objects to this topic to the extent it calls for information containing proprietary, confidential, trade secret, and/or private information. Qualcomm objects to this topic on the grounds that it seeks highly confidential and competitively sensitive information that cannot be disclosed until there is a protective order calling for proper protections.

Subject to the foregoing General and Specific Objections, Qualcomm responds as follows: Qualcomm will meet and confer with Oplus in order to narrow the scope of this topic and identify the relevant, non-privileged information, if any, Oplus seeks that cannot

1 be obtained from a party to this action or IDT.

2 **DEPOSITION TOPIC NO. 2:**

3 The process of noise reduction, and all steps involved therein, as it is performed by
4 HQV.

5
6 **RESPONSE TO DEPOSITION TOPIC NO. 2:**

7 In addition to its Preliminary Statement, General Objections, Objections to
8 Definitions, and Objections to Instructions, which are hereby incorporated by reference,
9 Qualcomm objects to this topic on the grounds that it is overly broad, unduly burdensome,
10 vague, and ambiguous. Qualcomm also objects to this topic to the extent that it calls for
11 information that is neither relevant nor reasonably calculated to lead to the discovery of
12 admissible evidence. Qualcomm further objects to the terms "The process of noise
13 reduction," "and all steps involved therein," and "as it is performed by HQV," as vague,
14 ambiguous and overly broad. Qualcomm objects to this topic to the extent it calls for
15 information concerning products that are sold outside the United States. Qualcomm also
16 objects to this topic to the extent it calls for information within the public domain or
17 information not in Qualcomm's possession, custody, or control or not reasonably
18 accessible. More specifically, Qualcomm objects to this topic on the grounds that it is
19 unduly burdensome to the extent it seeks information from non-party Qualcomm that is
20 equally available and more appropriately obtained from the parties to this action or IDT.
21 Qualcomm further objects to this topic to the extent it calls for information containing
22 proprietary, confidential, trade secret, and/or private information. Qualcomm objects to
23 this topic on the grounds that it seeks highly confidential and competitively sensitive
24 information that cannot be disclosed until there is a protective order calling for proper
25 protections.

26 Subject to the foregoing General and Specific Objections, Qualcomm responds as
27 follows: Qualcomm will meet and confer with Oplus in order to narrow the scope of this
28 topic and identify the relevant, non-privileged information, if any, Oplus seeks that cannot

1 be obtained from a party to this action or IDT.

2 **DEPOSITION TOPIC NO. 3:**

3 The process of motion adaptive processing, and all steps involved therein, as it is
4 performed by HQV.

5
6 **RESPONSE TO DEPOSITION TOPIC NO. 3:**

7 In addition to its Preliminary Statement, General Objections, Objections to
8 Definitions, and Objections to Instructions, which are hereby incorporated by reference,
9 Qualcomm objects to this topic on the grounds that it is overly broad, unduly burdensome,
10 vague, and ambiguous. Qualcomm also objects to this topic to the extent that it calls for
11 information that is neither relevant nor reasonably calculated to lead to the discovery of
12 admissible evidence. Qualcomm further objects to the terms "The process of motion
13 adaptive processing," "and all steps involved therein," and "as it is performed by HQV," as
14 vague, ambiguous and overly broad. Qualcomm objects to this topic to the extent it calls
15 for information concerning products that are sold outside the United States. Qualcomm
16 also objects to this topic to the extent it calls for information within the public domain or
17 information not in Qualcomm's possession, custody, or control or not reasonably
18 accessible. More specifically, Qualcomm objects to this topic on the grounds that it is
19 unduly burdensome to the extent it seeks information from non-party Qualcomm that is
20 equally available and more appropriately obtained from the parties to this action or IDT.
21 Qualcomm further objects to this topic to the extent it calls for information containing
22 proprietary, confidential, trade secret, and/or private information. Qualcomm objects to
23 this topic on the grounds that it seeks highly confidential and competitively sensitive
24 information that cannot be disclosed until there is a protective order calling for proper
25 protections.

26 Subject to the foregoing General and Specific Objections, Qualcomm responds as
27 follows: Qualcomm will meet and confer with Oplus in order to narrow the scope of this
28 topic and identify the relevant, non-privileged information, if any, Oplus seeks that cannot

1 be obtained from a party to this action or IDT.

2 **DEPOSITION TOPIC NO. 4:**

3 The process of temporal filtering, and all steps involved therein, as it is performed by
4 HQV.

5
6 **RESPONSE TO DEPOSITION TOPIC NO. 4:**

7 In addition to its Preliminary Statement, General Objections, Objections to
8 Definitions, and Objections to Instructions, which are hereby incorporated by reference,
9 Qualcomm objects to this topic on the grounds that it is overly broad, unduly burdensome,
10 vague, and ambiguous. Qualcomm also objects to this topic to the extent that it calls for
11 information that is neither relevant nor reasonably calculated to lead to the discovery of
12 admissible evidence. Qualcomm further objects to the terms “The process of temporal
13 filtering,” “and all steps involved therein,” and “as it is performed by HQV,” as vague,
14 ambiguous and overly broad. Qualcomm objects to this topic to the extent it calls for
15 information concerning products that are sold outside the United States. Qualcomm also
16 objects to this topic to the extent it calls for information within the public domain or
17 information not in Qualcomm’s possession, custody, or control or not reasonably
18 accessible. More specifically, Qualcomm objects to this topic on the grounds that it is
19 unduly burdensome to the extent it seeks information from non-party Qualcomm that is
20 equally available and more appropriately obtained from the parties to this action or IDT.
21 Qualcomm further objects to this topic to the extent it calls for information containing
22 proprietary, confidential, trade secret, and/or private information. Qualcomm objects to
23 this topic on the grounds that it seeks highly confidential and competitively sensitive
24 information that cannot be disclosed until there is a protective order calling for proper
25 protections.

26 Subject to the foregoing General and Specific Objections, Qualcomm responds as
27 follows: Qualcomm will meet and confer with Oplus in order to narrow the scope of this
28 topic and identify the relevant, non-privileged information, if any, Oplus seeks that cannot

1 be obtained from a party to this action or IDT.

2 **DEPOSITION TOPIC NO. 5:**

3 The process of spatial filtering, and all steps involved therein, as it is performed by
4 HQV.

5
6 **RESPONSE TO DEPOSITION TOPIC NO. 5:**

7 In addition to its Preliminary Statement, General Objections, Objections to
8 Definitions, and Objections to Instructions, which are hereby incorporated by reference,
9 Qualcomm objects to this topic on the grounds that it is overly broad, unduly burdensome,
10 vague, and ambiguous. Qualcomm also objects to this topic to the extent that it calls for
11 information that is neither relevant nor reasonably calculated to lead to the discovery of
12 admissible evidence. Qualcomm further objects to the terms "The process of spatial
13 filtering," "and all steps involved therein," and "as it is performed by HQV," as vague,
14 ambiguous and overly broad. Qualcomm objects to this topic to the extent it calls for
15 information concerning products that are sold outside the United States. Qualcomm also
16 objects to this topic to the extent it calls for information within the public domain or
17 information not in Qualcomm's possession, custody, or control or not reasonably
18 accessible. More specifically, Qualcomm objects to this topic on the grounds that it is
19 unduly burdensome to the extent it seeks information from non-party Qualcomm that is
20 equally available and more appropriately obtained from the parties to this action or IDT.
21 Qualcomm further objects to this topic to the extent it calls for information containing
22 proprietary, confidential, trade secret, and/or private information. Qualcomm objects to
23 this topic on the grounds that it seeks highly confidential and competitively sensitive
24 information that cannot be disclosed until there is a protective order calling for proper
25 protections.

26 Subject to the foregoing General and Specific Objections, Qualcomm responds as
27 follows: Qualcomm will meet and confer with Oplus in order to narrow the scope of this
28 topic and identify the relevant, non-privileged information, if any, Oplus seeks that cannot

1 be obtained from a party to this action or IDT.

2 **DEPOSITION TOPIC NO. 6:**

3 The process of bad edit detection, and all steps involved therein, as it is performed by
4 HQV.

5
6 **RESPONSE TO DEPOSITION TOPIC NO. 6:**

7 In addition to its Preliminary Statement, General Objections, Objections to
8 Definitions, and Objections to Instructions, which are hereby incorporated by reference,
9 Qualcomm objects to this topic on the grounds that it is overly broad, unduly burdensome,
10 vague, and ambiguous. Qualcomm also objects to this topic to the extent that it calls for
11 information that is neither relevant nor reasonably calculated to lead to the discovery of
12 admissible evidence. Qualcomm further objects to the terms "The process of bad edit
13 detection," "and all steps involved therein," and "as it is performed by HQV," as vague,
14 ambiguous and overly broad. Qualcomm objects to this topic to the extent it calls for
15 information concerning products that are sold outside the United States. Qualcomm also
16 objects to this topic to the extent it calls for information within the public domain or
17 information not in Qualcomm's possession, custody, or control or not reasonably
18 accessible. More specifically, Qualcomm objects to this topic on the grounds that it is
19 unduly burdensome to the extent it seeks information from non-party Qualcomm that is
20 equally available and more appropriately obtained from the parties to this action or IDT.
21 Qualcomm further objects to this topic to the extent it calls for information containing
22 proprietary, confidential, trade secret, and/or private information. Qualcomm objects to
23 this topic on the grounds that it seeks highly confidential and competitively sensitive
24 information that cannot be disclosed until there is a protective order calling for proper
25 protections.

26 Subject to the foregoing General and Specific Objections, Qualcomm responds as
27 follows: Qualcomm will meet and confer with Oplus in order to narrow the scope of this
28 topic and identify the relevant, non-privileged information, if any, Oplus seeks that cannot

1 be obtained from a party to this action or IDT.

2 **DEPOSITION TOPIC NO. 7:**

3 The process of bad edit correction, and all steps involved therein, as it is performed
4 by HQV.

5
6 **RESPONSE TO DEPOSITION TOPIC NO. 7:**

7 In addition to its Preliminary Statement, General Objections, Objections to
8 Definitions, and Objections to Instructions, which are hereby incorporated by reference,
9 Qualcomm objects to this topic on the grounds that it is overly broad, unduly burdensome,
10 vague, and ambiguous. Qualcomm also objects to this topic to the extent that it calls for
11 information that is neither relevant nor reasonably calculated to lead to the discovery of
12 admissible evidence. Qualcomm further objects to the terms "The process of bad edit
13 correction," "and all steps involved therein," and "as it is performed by HQV," as vague,
14 ambiguous and overly broad. Qualcomm objects to this topic to the extent it calls for
15 information concerning products that are sold outside the United States. Qualcomm also
16 objects to this topic to the extent it calls for information within the public domain or
17 information not in Qualcomm's possession, custody, or control or not reasonably
18 accessible. More specifically, Qualcomm objects to this topic on the grounds that it is
19 unduly burdensome to the extent it seeks information from non-party Qualcomm that is
20 equally available and more appropriately obtained from the parties to this action or IDT.
21 Qualcomm further objects to this topic to the extent it calls for information containing
22 proprietary, confidential, trade secret, and/or private information. Qualcomm objects to
23 this topic on the grounds that it seeks highly confidential and competitively sensitive
24 information that cannot be disclosed until there is a protective order calling for proper
25 protections.

26 Subject to the foregoing General and Specific Objections, Qualcomm responds as
27 follows: Qualcomm will meet and confer with Oplus in order to narrow the scope of this
28 topic and identify the relevant, non-privileged information, if any, Oplus seeks that cannot

1 be obtained from a party to this action or IDT

2 .
3 Dated: February 28, 2013

MORGAN, FRANICH, FREDKIN & MARSH

4 By: 

5 DAVID A. KAYS
6 Attorneys for Non-Party
7 QUALCOMM INCORPORATED
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1 **Re: Oplus Technologies, Ltd. v. Sears Holding Corporation and Vizio, Inc., Case No. 12-cv 5707**
2 **(CDCal)**

3 **CERTIFICATE OF SERVICE**

4 I, the undersigned, hereby certify that I am over the age of eighteen years and not a
5 party to the within action. My business address is 99 Almaden Boulevard, Suite 1000, San
6 Jose, California 95113-1606. On the date indicated below, I served in the manner
7 indicated below the following document(s):

8
9 **NON-PARTY QUALCOMM INCORPORATED'S RESPONSES AND OBJECTIONS TO OPLUS**
10 **TECHNOLOGIES, LTD.'S SUBPOENA TO PRODUCE DOCUMENTS, ETC. AND SUBPOENA TO**
11 **TESTIFY AT A DEPOSITION IN A CIVIL PROCEEDING**

12
13

X	BY ELECTRONIC MAIL. I caused the document(s) to be sent to the person at the electronic notification addresses listed as follows: dferri@nshn.com

14
15

16
17 Daniel R. Ferri
18 Niro, Haller & Niro
19 181 W. Madison, Street, Suite 4600
Chicago, IL 60602
(312) 377-3212
dferri@nshn.com

20
21 Executed on February 28, 2013 at San Jose, California. I certify that the foregoing
22 is true and correct.

23
24 
25 **DAVID A. KAYS**

Kevin M. Phillip, Esq.
750 Canyon Drive
Coppell, TX 75019
(972) 466-6000

Attorney for Non-Party Witness
STMicroelectronics, Inc.

**IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF TEXAS**

OPLUS TECHNOLOGIES, LTD.

v.

**SEARS HOLDING CORPORATION
AND VIZIO, INC.**

**Case No. 12-CV-5707
(Pending in the U.S.D.C.
For the Central District of California)**

**NON-PARTY WITNESS
STMICROELECTRONICS, INC.'S
RESPONSES AND OBJECTIONS TO
PLAINTIFF'S SUBPOENAS FOR
PRODUCTION OF DOCUMENTS
AND TESTIMONY**

Pursuant to Rules 26, 34 and 45 of the Federal Rules of Civil Procedure, non-party witness STMicroelectronics, Inc. ("ST") hereby responds and objects to the Subpoenas for Production of Documents and Testimony issued by Plaintiff Oplus Technologies, Ltd. as follows:

GENERAL OBJECTIONS TO THE SUBPOENAS

ST objects on the grounds that the subpoenas were not properly served on ST in accordance with the Federal Rules of Civil Procedure, including Rules 4(h) and 45(b).

ST objects on the grounds that the subpoenas do not allow a reasonable time for compliance as required under the Federal Rules of Civil Procedure, including Rule 45(c).

ST objects on the grounds that the subpoenas are vague, unintelligible, overbroad, not reasonably limited in time and scope, and would impose an undue burden and harassment upon ST in contravention of Rule 45(c)(1) of the Federal Rules of Civil Procedure and the Local Rules of the United States District Court for the Northern District of Texas. ST notes that the subpoenas contain no time limitation whatsoever and thus are unreasonable and overbroad on their face.

ST objects on the grounds that the subpoenas seek confidential commercial information and/or trade secrets.

ST objects to the requests contained in the subpoenas, including the definitions and instructions therein, to the extent they seek to impose requirements that are greater than or different from those imposed by the Federal Rules of Civil Procedure and/or the Local Rules of the United States District Court for the Northern District of Texas.

ST objects on the grounds and to the extent the subpoenas seek information not in ST's possession, custody or control.

ST objects on the grounds and to the extent that the subpoenas seeks duplicative information already requested by, or more appropriately obtained through, other discovery mechanisms including, discovery from the parties, including documents which are already in the parties possession, are a matter of public record or are otherwise equally available to the Defendants.

ST objects to the extent that the subpoenas seek information that is neither relevant to the claims or defenses of any party, nor reasonable calculated to lead to the discovery of admissible evidence.

ST objects to the extent that the subpoenas seek matters protected by the attorney-client privilege and/or the attorney work product doctrine or any other applicable privilege or immunity from discovery.

OBJECTIONS TO DEFINITIONS AND INSTRUCTIONS

ST objects to the definitions of "STMicroelectronics" and "VIZIO or Defendant" on the grounds that such terms are vague, overbroad, ambiguous, unintelligible, call for a legal conclusion and would lead to the imposition of burdensome and oppressive discovery obligations by seeking to include all other subsidiaries, affiliates, divisions, parent corporations, holding companies, related entities, predecessors, successors and any present or former officer, director, trustees, employees, agents, or representatives, attorneys, or any others who have acted or purported to act on their behalf. ST further objects to the extent this definition seeks to impose upon ST the burden of obtaining information which is not in its possession, custody or control. For purposes of any request or response incorporating these terms, the definitions are construed to mean only STMicroelectronics, Inc.

ST objects to the definition of "DCDi" on the grounds that such term is vague, overbroad, ambiguous, unintelligible, calls for a legal conclusion and would lead to the imposition of burdensome and oppressive discovery obligations, including, without limitation, by seeking to require a non-party to interpret various patents, patent applications and/or technical standards and/or determine questions regarding the scope and applicability of technical standards which are not the subject of any claim or defense in the underlying action. ST further objects to the extent this definition seeks to impose upon ST the burden of obtaining information which is not in its possession, custody or control.

ST objects to each and every remaining Definition as vague, overbroad, ambiguous, unintelligible, calling for a legal conclusion and seeking to impose obligations in addition to and/or different than, those required by the Federal Rules of Civil Procedure and/or the Local Rules of the United States District Court for the Northern District of Texas.

RESPONSES AND OBJECTIONS TO DOCUMENT REQUESTS

REQUEST FOR PRODUCTION 1:

All specifications relating to DCDi.

RESPONSE AND OBJECTION TO REQUEST FOR PRODUCTION 1:

ST objects to this Request on the grounds that it seeks proprietary, confidential or trade secret information. ST further objects to this Request on the grounds that it is vague, overbroad, ambiguous, unintelligible, calls for a legal conclusion and calls for the production of information not relevant nor reasonably calculated to lead to the discovery of admissible evidence. ST further objects to this Request on the grounds that it would lead to the imposition of burdensome and oppressive discovery obligations. ST further objects to this Request to the extent it seeks information subject to the attorney-client privilege and/or the attorney work product doctrine. ST specifically objects that the documents requested are a matter of public record and equally available to the parties. ST incorporates by reference herein each of its general objections set forth above.

REQUEST FOR PRODUCTION 2:

All white papers relating to DCDi.

RESPONSE AND OBJECTION TO REQUEST FOR PRODUCTION 2:

ST objects to this Request on the grounds that it seeks proprietary, confidential or trade secret information. ST further objects to this Request on the grounds that it is vague, overbroad, ambiguous, unintelligible, calls for a legal conclusion and calls for the production of information not relevant nor reasonably calculated to lead to the discovery of admissible evidence. ST further objects to this Request on the grounds that it would lead to the imposition of burdensome and oppressive discovery obligations. ST further objects to this Request to the extent it seeks information subject to the attorney-client privilege and/or the attorney work product doctrine. ST specifically objects that the documents requested are a matter of public record and equally available to the parties. ST specifically objects that the terms "All white papers relating to" are vague, overbroad, ambiguous and not defined. ST incorporates by reference herein each of its general objections set forth above.

REQUEST FOR PRODUCTION 3:

All flow charts relating to DCDi.

RESPONSE AND OBJECTION TO REQUEST FOR PRODUCTION 3:

ST objects to this Request on the grounds that it seeks proprietary, confidential or trade secret information. ST further objects to this Request on the grounds that it is vague, overbroad, ambiguous, unintelligible, calls for a legal conclusion and calls for the production of information not relevant nor reasonably calculated to lead to the discovery of admissible evidence. ST further objects to this Request on the grounds that it would lead to the imposition of burdensome and oppressive discovery obligations. ST further objects to this Request to the extent it seeks information subject to the attorney-client privilege and/or the attorney work product doctrine. ST specifically objects that the documents requested are a matter of public record and equally available to the parties. ST specifically objects that the terms "All flow charts relating to" are vague, overbroad, ambiguous and not defined. ST incorporates by reference herein each of its general objections set forth above.

REQUEST FOR PRODUCTION 4:

All block diagrams relating to DCDi.

RESPONSE AND OBJECTION TO REQUEST FOR PRODUCTION 4:

ST objects to this Request on the grounds that it seeks proprietary, confidential or trade secret information. ST further objects to this Request on the grounds that it is vague, overbroad, ambiguous, unintelligible, calls for a legal conclusion and calls for the production of information not relevant nor reasonably calculated to lead to the discovery of admissible evidence. ST further objects to this Request on the grounds that it would lead to the imposition of burdensome and oppressive discovery obligations. ST further objects to this Request to the extent it seeks information subject to the attorney-client privilege and/or the attorney work product doctrine. ST specifically objects that the documents requested are a matter of public record and equally available to the parties. ST specifically objects that the terms "All block diagrams relating to" are vague, overbroad, ambiguous and not defined. ST incorporates by reference herein each of its general objections set forth above.

REQUEST FOR PRODUCTION 5:

All technical reference manuals relating to DCDi.

RESPONSE AND OBJECTION TO REQUEST FOR PRODUCTION 5:

ST objects to this Request on the grounds that it seeks proprietary, confidential or trade secret information. ST further objects to this Request on the grounds that it is

vague, overbroad, ambiguous, unintelligible, calls for a legal conclusion and calls for the production of information not relevant nor reasonably calculated to lead to the discovery of admissible evidence. ST further objects to this Request on the grounds that it would lead to the imposition of burdensome and oppressive discovery obligations. ST further objects to this Request to the extent it seeks information subject to the attorney-client privilege and/or the attorney work product doctrine. ST specifically objects that the documents requested are a matter of public record and equally available to the parties. ST specifically objects that the terms "All technical reference manuals relating to" are vague, overbroad, ambiguous and not defined. ST incorporates by reference herein each of its general objections set forth above.

REQUEST FOR PRODUCTION 6:

All documents relating to the algorithms used in the context of DCDi.

RESPONSE AND OBJECTION TO REQUEST FOR PRODUCTION 6:

ST objects to this Request on the grounds that it seeks proprietary, confidential or trade secret information. ST further objects to this Request on the grounds that it is vague, overbroad, ambiguous, unintelligible, calls for a legal conclusion and calls for the production of information not relevant nor reasonably calculated to lead to the discovery of admissible evidence. ST further objects to this Request on the grounds that it would lead to the imposition of burdensome and oppressive discovery obligations. ST further objects to this Request to the extent it seeks information subject to the attorney-client privilege and/or the attorney work product doctrine. ST specifically objects that the documents requested are a matter of public record and equally available to the parties. ST specifically objects that the terms "All documents relating to the algorithms used in the context of" are vague, overbroad, ambiguous and not defined. ST incorporates by reference herein each of its general objections set forth above.

REQUEST FOR PRODUCTION 7:

All documents relating to de-interlacing in the context of DCDi.

RESPONSE AND OBJECTION TO REQUEST FOR PRODUCTION 7:

ST objects to this Request on the grounds that it seeks proprietary, confidential or trade secret information. ST further objects to this Request on the grounds that it is vague, overbroad, ambiguous, unintelligible, calls for a legal conclusion and calls for the production of information not relevant nor reasonably calculated to lead to the discovery of admissible evidence. ST further objects to this Request on the grounds that it would lead to the imposition of burdensome and oppressive discovery obligations. ST further objects to this Request to the extent it seeks information subject to the attorney-client privilege and/or the attorney work product doctrine. ST specifically objects that the documents requested are a matter of public record and equally available to the parties. ST specifically objects that the terms "All documents relating to de-interlacing in the context

of” are vague, overbroad, ambiguous and not defined. ST incorporates by reference herein each of its general objections set forth above.

REQUEST FOR PRODUCTION 8:

All documents relating noise reduction in the context of DCDi.

RESPONSE AND OBJECTION TO REQUEST FOR PRODUCTION 8:

ST objects to this Request on the grounds that it seeks proprietary, confidential or trade secret information. ST further objects to this Request on the grounds that it is vague, overbroad, ambiguous, unintelligible, calls for a legal conclusion and calls for the production of information not relevant nor reasonably calculated to lead to the discovery of admissible evidence. ST further objects to this Request on the grounds that it would lead to the imposition of burdensome and oppressive discovery obligations. ST further objects to this Request to the extent it seeks information subject to the attorney-client privilege and/or the attorney work product doctrine. ST specifically objects that the documents requested are a matter of public record and equally available to the parties. ST specifically objects that the terms “All documents relating to noise reduction in the context of” are vague, overbroad, ambiguous and not defined. ST incorporates by reference herein each of its general objections set forth above.

REQUEST FOR PRODUCTION 9:

All documents relating to motion adaptive processing in the context of DCDi

RESPONSE AND OBJECTION TO REQUEST FOR PRODUCTION 9:

ST objects to this Request on the grounds that it seeks proprietary, confidential or trade secret information. ST further objects to this Request on the grounds that it is vague, overbroad, ambiguous, unintelligible, calls for a legal conclusion and calls for the production of information not relevant nor reasonably calculated to lead to the discovery of admissible evidence. ST further objects to this Request on the grounds that it would lead to the imposition of burdensome and oppressive discovery obligations. ST further objects to this Request to the extent it seeks information subject to the attorney-client privilege and/or the attorney work product doctrine. ST specifically objects that the documents requested are a matter of public record and equally available to the parties. ST specifically objects that the terms “All documents relating to motion adaptive processing in the context of” are vague, overbroad, ambiguous and not defined. ST incorporates by reference herein each of its general objections set forth above.

REQUEST FOR PRODUCTION 10:

All documents relating to spatial filtering in the context of DCDi

RESPONSE AND OBJECTION TO REQUEST FOR PRODUCTION 10:

ST objects to this Request on the grounds that it seeks proprietary, confidential or trade secret information. ST further objects to this Request on the grounds that it is vague, overbroad, ambiguous, unintelligible, calls for a legal conclusion and calls for the production of information not relevant nor reasonably calculated to lead to the discovery of admissible evidence. ST further objects to this Request on the grounds that it would lead to the imposition of burdensome and oppressive discovery obligations. ST further objects to this Request to the extent it seeks information subject to the attorney-client privilege and/or the attorney work product doctrine. ST specifically objects that the documents requested are a matter of public record and equally available to the parties. ST specifically objects that the terms "All documents relating to spatial filtering in the context of" are vague, overbroad, ambiguous and not defined. ST incorporates by reference herein each of its general objections set forth above.

REQUEST FOR PRODUCTION 11:

All documents relating to temporal filtering in the context of DCDi.

RESPONSE AND OBJECTION TO REQUEST FOR PRODUCTION 11:

ST objects to this Request on the grounds that it seeks proprietary, confidential or trade secret information. ST further objects to this Request on the grounds that it is vague, overbroad, ambiguous, unintelligible, calls for a legal conclusion and calls for the production of information not relevant nor reasonably calculated to lead to the discovery of admissible evidence. ST further objects to this Request on the grounds that it would lead to the imposition of burdensome and oppressive discovery obligations. ST further objects to this Request to the extent it seeks information subject to the attorney-client privilege and/or the attorney work product doctrine. ST specifically objects that the documents requested are a matter of public record and equally available to the parties. ST specifically objects that the terms "All documents relating to temporal filtering in the context of" are vague, overbroad, ambiguous and not defined. ST incorporates by reference herein each of its general objections set forth above.

REQUEST FOR PRODUCTION 12:

All documents relating to video enhancement in the context of DCDi.

RESPONSE AND OBJECTION TO REQUEST FOR PRODUCTION 12:

ST objects to this Request on the grounds that it seeks proprietary, confidential or trade secret information. ST further objects to this Request on the grounds that it is vague, overbroad, ambiguous, unintelligible, calls for a legal conclusion and calls for the production of information not relevant nor reasonably calculated to lead to the discovery of admissible evidence. ST further objects to this Request on the grounds that it would lead to the imposition of burdensome and oppressive discovery obligations. ST further

objects to this Request to the extent it seeks information subject to the attorney-client privilege and/or the attorney work product doctrine. ST specifically objects that the documents requested are a matter of public record and equally available to the parties. ST specifically objects that the terms "All documents relating to video enhancement in the context of" are vague, overbroad, ambiguous and not defined. ST incorporates by reference herein each of its general objections set forth above.

REQUEST FOR PRODUCTION 13:

All documents relating to error correction on an input of interlaced data in the context of DCDi.

RESPONSE AND OBJECTION TO REQUEST FOR PRODUCTION 13:

ST objects to this Request on the grounds that it seeks proprietary, confidential or trade secret information. ST further objects to this Request on the grounds that it is vague, overbroad, ambiguous, unintelligible, calls for a legal conclusion and calls for the production of information not relevant nor reasonably calculated to lead to the discovery of admissible evidence. ST further objects to this Request on the grounds that it would lead to the imposition of burdensome and oppressive discovery obligations. ST further objects to this Request to the extent it seeks information subject to the attorney-client privilege and/or the attorney work product doctrine. ST specifically objects that the documents requested are a matter of public record and equally available to the parties. ST specifically objects that the terms "All documents relating to error correction on an input of interlaced data in the context of" are vague, overbroad, ambiguous and not defined. ST incorporates by reference herein each of its general objections set forth above.

REQUEST FOR PRODUCTION 14:

All documents relating to Second Stage Diagonal Interpolation in the context of DCDi.

RESPONSE AND OBJECTION TO REQUEST FOR PRODUCTION 14:

ST objects to this Request on the grounds that it seeks proprietary, confidential or trade secret information. ST further objects to this Request on the grounds that it is vague, overbroad, ambiguous, unintelligible, calls for a legal conclusion and calls for the production of information not relevant nor reasonably calculated to lead to the discovery of admissible evidence. ST further objects to this Request on the grounds that it would lead to the imposition of burdensome and oppressive discovery obligations. ST further objects to this Request to the extent it seeks information subject to the attorney-client privilege and/or the attorney work product doctrine. ST specifically objects that the documents requested are a matter of public record and equally available to the parties. ST specifically objects that the terms "All documents relating to Second Stage Diagonal Interpolation in the context of" are vague, overbroad, ambiguous and not defined. ST incorporates by reference herein each of its general objections set forth above.

REQUEST FOR PRODUCTION 15:

All documents relating to 3.2 Pulldown Detection in the context of DCDi.

RESPONSE AND OBJECTION TO REQUEST FOR PRODUCTION 15:

ST objects to this Request on the grounds that it seeks proprietary, confidential or trade secret information. ST further objects to this Request on the grounds that it is vague, overbroad, ambiguous, unintelligible, calls for a legal conclusion and calls for the production of information not relevant nor reasonably calculated to lead to the discovery of admissible evidence. ST further objects to this Request on the grounds that it would lead to the imposition of burdensome and oppressive discovery obligations. ST further objects to this Request to the extent it seeks information subject to the attorney-client privilege and/or the attorney work product doctrine. ST specifically objects that the documents requested are a matter of public record and equally available to the parties. ST specifically objects that the terms "All documents relating to 3.2 Pulldown Detection in the context of" are vague, overbroad, ambiguous and not defined. ST incorporates by reference herein each of its general objections set forth above.

REQUEST FOR PRODUCTION 16:

All documents relating to bad edit detection and/or correction in the context of DCDi.

RESPONSE AND OBJECTION TO REQUEST FOR PRODUCTION 16:

ST objects to this Request on the grounds that it seeks proprietary, confidential or trade secret information. ST further objects to this Request on the grounds that it is vague, overbroad, ambiguous, unintelligible, calls for a legal conclusion and calls for the production of information not relevant nor reasonably calculated to lead to the discovery of admissible evidence. ST further objects to this Request on the grounds that it would lead to the imposition of burdensome and oppressive discovery obligations. ST further objects to this Request to the extent it seeks information subject to the attorney-client privilege and/or the attorney work product doctrine. ST specifically objects that the documents requested are a matter of public record and equally available to the parties. ST specifically objects that the terms "All documents relating to bad edit detection and/or correction in the context of" are vague, overbroad, ambiguous and not defined. ST incorporates by reference herein each of its general objections set forth above.

REQUEST FOR PRODUCTION 17:

All documents relating to entropy or randomness in the context of DCDi.

RESPONSE AND OBJECTION TO REQUEST FOR PRODUCTION 17:

ST objects to this Request on the grounds that it seeks proprietary, confidential or trade secret information. ST further objects to this Request on the grounds that it is vague, overbroad, ambiguous, unintelligible, calls for a legal conclusion and calls for the production of information not relevant nor reasonably calculated to lead to the discovery of admissible evidence. ST further objects to this Request on the grounds that it would lead to the imposition of burdensome and oppressive discovery obligations. ST further objects to this Request to the extent it seeks information subject to the attorney-client privilege and/or the attorney work product doctrine. ST specifically objects that the documents requested are a matter of public record and equally available to the parties. ST specifically objects that the terms "All documents relating to entropy or randomness in the context of" are vague, overbroad, ambiguous and not defined. ST incorporates by reference herein each of its general objections set forth above.

REQUEST FOR PRODUCTION 18:

All class listings relating to DCDi.

RESPONSE AND OBJECTION TO REQUEST FOR PRODUCTION 18:

ST objects to this Request on the grounds that it seeks proprietary, confidential or trade secret information. ST further objects to this Request on the grounds that it is vague, overbroad, ambiguous, unintelligible, calls for a legal conclusion and calls for the production of information not relevant nor reasonably calculated to lead to the discovery of admissible evidence. ST further objects to this Request on the grounds that it would lead to the imposition of burdensome and oppressive discovery obligations. ST further objects to this Request to the extent it seeks information subject to the attorney-client privilege and/or the attorney work product doctrine. ST specifically objects that the documents requested are a matter of public record and equally available to the parties. ST specifically objects that the terms "All class listings relating to" are vague, overbroad, ambiguous and not defined. ST incorporates by reference herein each of its general objections set forth above.

REQUEST FOR PRODUCTION 19:

All Unified Modeling Language (UML) diagrams relating to DCDi.

RESPONSE AND OBJECTION TO REQUEST FOR PRODUCTION 19:

ST objects to this Request on the grounds that it seeks proprietary, confidential or trade secret information. ST further objects to this Request on the grounds that it is vague, overbroad, ambiguous, unintelligible, calls for a legal conclusion and calls for the production of information not relevant nor reasonably calculated to lead to the discovery of admissible evidence. ST further objects to this Request on the grounds that it would lead to the imposition of burdensome and oppressive discovery obligations. ST further

objects to this Request to the extent it seeks information subject to the attorney-client privilege and/or the attorney work product doctrine. ST specifically objects that the documents requested are a matter of public record and equally available to the parties. ST specifically objects that the terms "All Unified Modeling Language (UML) diagrams relating to" are vague, overbroad, ambiguous and not defined. ST incorporates by reference herein each of its general objections set forth above.

RESPONSES AND OBJECTIONS TO DEPOSITION TOPICS
(EXHIBIT A)

DEPOSITION TOPICS 1-7:

Please see Exhibit A for the Topics.

RESPONSE AND OBJECTION TO DEPOSITION TOPICS 1-17:

ST objects to each of the Topics on the grounds that they seek proprietary, confidential or trade secret information. ST further objects to each of the Topics on the grounds that it is vague, overbroad, ambiguous, unintelligible, not limited in time nor scope, calls for a legal conclusion and calls for testimony not relevant nor reasonably calculated to lead to the discovery of admissible evidence. ST further objects to each of the Topics on the grounds that it would lead to the imposition of burdensome and oppressive discovery obligations. ST further objects to each of the Topics to the extent it seeks information subject to the attorney-client privilege and/or the attorney work product doctrine. ST further objects that the testimony called for in each of the various Topics are a matter of public record and equally available to the parties. ST further objects no ST products are the subject of any claim or defense in the underlying action and thus ST has no person knowledgeable regarding these Topics or the design, operation or compliance with any technical standards including, without limitation, DCDi, of any defendants accused products. ST incorporates by reference herein each of its general objections set forth above. Subject to and without waiving the foregoing objections, ST responds that it will not produce a witness to testify as requested on March 11, 2013.


Dated: March 1, 2013



Kevin M. Fillip, Esq.
Attorney for non-party witness
STMicroelectronics, Inc.
750 Canyon Drive
Coppell, TX 75019

CERTIFICATE OF SERVICE

The undersigned certifies that the foregoing document was served on the parties set forth below by depositing same in the United States mail postage prepaid, on the 1st day of March, 2013, in accordance with the Federal Rules of Civil Procedure.


Debbie Ramos

Daniel Ferri
Niro, Haller & Niro
181 West Madison Street
Suite 4600
Chicago, Illinois 60602

Counsel for Plaintiff Oplus Technologies, Ltd.

UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF TEXAS
TYLER DIVISION

Stragent, LLC,

Plaintiff,

v.

Intel Corporation,

Defendant.

Case No. 6:11-cv-421

ORDER AND OPINION DENYING ATTORNEY'S FEES

Before the court is defendant Intel Corporation's (Intel) Amended Motion for Attorneys' Fees, May 8, 2014, ECF No. 355, along with plaintiff Stragent LLC's (Stragent) Response, May 22, 2014, ECF No. 359, Intel's Reply, May 29, 2014, ECF No. 360, and Stragent's Surreply, June 5, 2014, ECF No. 361. Intel bases its request for fees on § 285 of the Patent Act, which permits a court to award reasonable attorney's fees in "exceptional" patent cases. At this point, Intel has only asked the court to determine Stragent's liability for fees; it states that, if fees are awarded, it will later file a specific request detailing the amount of its fees. Am. Mot. for Atty's Fees 3; *see* Fed. R. Civ. P. 54(d)(2)(C) ("The court may decide issues of liability for fees before receiving submissions on the value of services."). For the reasons that follow, it is the court's judgment that this is not an exceptional case under § 285. Stragent therefore is not liable for Intel's attorney's fees, and Intel's motion is **DENIED**.

BACKGROUND

Stragent commenced this suit in August 2011, when it filed a complaint accusing Intel of infringing claims of U.S. Patent Nos. 6,848,072 (the '072 patent), 7,028,244 (the '244 patent),

and 7,320,102 (the '102 patent) by manufacturing server processors with hardwired circuits configured to perform cyclic redundancy check (CRC) operations on transmitted data. Only Stragent's infringement allegations under claims 12 and 16 of the '072 patent proceeded to trial.

The trial resulted in a jury verdict finding the asserted claims of the '072 patent invalid and not infringed. Stragent did not file a post-verdict motion for judgment as a matter of law, and it did not appeal. Intel then moved for an award of attorney's fees under 35 U.S.C. § 285.

At the time Intel filed its motion for attorney's fees, the Supreme Court had not yet decided *Octane Fitness, LLC v. Icon Health & Fitness, Inc.*, 134 S. Ct. 1749 (2014), a case involving the standard for awarding attorney's fees under § 285. The Supreme Court issued its decision in *Octane* between the filing of Intel's motion and Stragent's response. The court granted Intel leave to file an amended motion for attorney's fees incorporating the standard enunciated in *Octane*, and Intel filed its amended motion on May 8, 2014. The matter is now fully briefed and ready for decision.

DISCUSSION

I

Before addressing the merits of Intel's motion for attorney's fees, it is necessary to address the proper standard for evaluating whether an award of attorney's fees is appropriate. The Supreme Court's decision in *Octane* has changed the governing standard.

A

Section 285 of the Patent Act provides that "[t]he court in exceptional cases may award reasonable attorney fees to the prevailing party." 35 U.S.C. § 285. Section 285 restricts awards of attorney's fees to "exceptional" cases. Section 285 is itself an exception to what is often called

the “American Rule”—the rule in American courts that each party to a lawsuit generally pays its own lawyers’ fees, no matter who wins.

Until recently, the determination of whether a case was “exceptional” under § 285 was governed by the standard enunciated by the Federal Circuit in *Brooks Furniture Manufacturing, Inc. v. Dutailier International, Inc.*, 393 F.3d 1378 (Fed. Cir. 2005). *Brooks Furniture* held:

A case may be deemed exceptional when there has been some material inappropriate conduct related to the matter in litigation, such as willful infringement, fraud or inequitable conduct in procuring the patent, misconduct during litigation, vexatious or unjustified litigation, conduct that violates [Rule 11 of the Federal Rules of Civil Procedure], or like infractions. Absent misconduct in conduct of the litigation or in securing the patent, sanctions may be imposed against the patentee only if both (1) the litigation is brought in subjective bad faith, and (2) the litigation is objectively baseless. . . . [T]he underlying improper conduct and the characterization of the case as exceptional must be established by clear and convincing evidence.

Id. at 1381–82 (citations omitted). Thus, under the *Brooks Furniture* standard, absent litigation misconduct or inequitable conduct before the patent office, a defendant seeking attorney’s fees had to prove by clear and convincing evidence that (1) the litigation was brought in subjective bad faith and (2) the litigation was objectively baseless.

In *Octane*, the Supreme Court rejected the *Brooks Furniture* test, stating that it “is unduly rigid, and it impermissibly encumbers the statutory grant of discretion to district courts.” 134 S. Ct. at 1755. Instead, the Court looked to the history of the statute and earlier circuit case law for the correct test.

Fee-shifting authority in patent cases originated in a predecessor to § 285, a provision of the 1946 Patent Act which stated that a district court “may in its discretion award reasonable attorney’s fees to the prevailing party upon the entry of judgment in any patent case.” 134 S. Ct. at 1753 (quoting 35 U.S.C. § 70 (1946)). Although the provision ostensibly gave district courts authority to shift fees in “any patent case,” *id.*, courts exercised their discretion sparingly,

“view[ing] the award of fees not ‘as a penalty for failure to win a patent infringement suit,’ but as appropriate ‘only in extraordinary circumstances.’” *Id.* at 1753 (quoting *Park-In-Theatres, Inc. v. Perkins*, 190 F.2d 137, 142 (9th Cir. 1951)). Awards of attorney’s fees were made where necessary “to address ‘unfairness or bad faith in the conduct of the losing party, or some other equitable consideration of similar force,’ which made a case so unusual as to warrant fee-shifting.” *Id.* (quoting *Park-In-Theatres*, 190 F.2d at 142).

In 1952, Congress amended and re-codified the fee-shifting provision to its present form, which provides that “[t]he court in exceptional cases may award reasonable attorney fees to the prevailing party.” 35 U.S.C. § 285 (1952). The *Octane* Court explained that “the addition of the phrase ‘exceptional cases in § 285,’” though arguably substantive, “was ‘for purposes of clarification only.’” 134 S. Ct. at 1753 (quoting *Gen. Motors Corp. v. Devex Corp.*, 461 U.S. 648, 653 n.8 (1983)). The Senate Report accompanying the 1952 Act “explained that the new provision was ‘substantially the same as’ § 70, and that the ‘exceptional cases’ language was added simply to ‘expres[s] the intention of the [1946] statute as shown by its legislative history and as interpreted by the courts.’” *Id.* n.2 (alterations in original) (quoting S. Rep. No. 82-1979, at 30 (1952), *reprinted in* 1952 U.S.C.C.A.N. 2394, 2423). The *Octane* Court concluded that both before and after the 1952 amendment (until *Brooks Furniture*) the regional circuits and later the Federal Circuit applied § 285 only in rare cases and “in a discretionary manner, assessing various factors to determine whether a given case was sufficiently ‘exceptional’ to warrant a fee award” and considering “the totality of the circumstances.” *Id.* at 1753–54.

The Court explained that the pre-*Brooks Furniture* standard was the right one. *See id.* at 1753–54 (citing approvingly *Park-In-Theatres*, 190 F.2d at 142; *Pa. Crusher Co. v. Bethlehem Steel Co.*, 193 F.2d 445, 451 (3d Cir. 1951)). Rather than imposing a two-part test, the Court

held, § 285 “imposes one and only one constraint on district courts’ discretion to award attorney’s fees in patent litigation: The power is reserved for ‘exceptional’ cases.” *Id.* at 1755–56. “[A]n ‘exceptional’ case,” the court explained further, “is simply one that stands out from others with respect to the substantive strength of a party’s litigating position (considering both the governing law and the facts of the case) or the unreasonable manner in which the case was litigated.” *Id.* at 1756. “District courts may determine whether a case is ‘exceptional’ in the case-by-case exercise of their discretion, considering the totality of the circumstances.” *Id.* Citing an analogous case involving the attorney’s fees provision of the Copyright Act, the Court cautioned that “[t]here is no precise rule or formula for making these determinations,’ but instead equitable discretion should be exercised ‘in light of the considerations we have identified.’” *Id.* (quoting *Fogerty v. Fantasy, Inc.*, 510 U.S. 517, 534 (1994)). The Court also concluded that entitlement to attorney’s fees under § 285 need only be established by a preponderance of the evidence, rather than clear and convincing evidence as the Federal Circuit had held in *Brooks Furniture*. *Id.* at 1758.

B

A number of general guidelines can be discerned from the *Octane* Court’s treatment of § 285 that guide this court in assessing whether an award of fees is proper in a given case.

First, awards of attorney’s fees in patent cases should be reserved for rare and unusual circumstances, as the Court explained. *See id.* at 1756 (“In 1952, when Congress used the word in § 285 . . . ‘[e]xceptional’ meant uncommon, rare, or not ordinary.” (internal quotation marks omitted)). In this regard, the Court approvingly cited the Ninth Circuit’s decision in *Park-In-Theatres*, decided under the original fee-shifting statute, which admonished that courts should only award attorney’s fees where necessary to correct injustice:

[T]he payment of attorney's fees for the victor is not to be regarded as a penalty for failure to win a patent infringement suit. The exercise of discretion in favor of such an allowance should be bottomed upon a finding of unfairness or bad faith in the conduct of the losing party, or some other equitable consideration of similar force, which makes it grossly unjust that the winner of the particular law suit be left to bear the burden of his own counsel fees which prevailing litigants normally bear.

190 F.2d at 142.

Second, courts contemplating an award of attorney's fees should consider the totality of the circumstances in the case. *See Octane*, 134 S. Ct. at 1756 ("District courts may determine whether a case is 'exceptional' in the case-by-case exercise of their discretion, considering the totality of the circumstances."). The predominant factors to be considered, though not exclusive, are those identified in *Brooks Furniture*: bad faith litigation, objectively unreasonable positions, inequitable conduct before the PTO, litigation misconduct, and (in the case of an accused infringer) willful infringement. *Id.* at 1756 ("[A]n 'exceptional' case is simply one that stands out from others with respect to the substantive strength of a party's litigating position . . . or the unreasonable manner in which the case was litigated."); *see also id.* n.6 (reciting various factors identified in *Fogerty*, 510 U.S. at 534 n.19). "[A] case presenting either subjective bad faith or exceptionally meritless claims may sufficiently set itself apart from mine-run cases to warrant a fee award." *Id.* at 1757. The totality of the circumstances standard is not, however, an invitation to a "kitchen sink" approach where the prevailing party questions each argument and action of the losing party in an effort to secure attorney's fees. In adopting the totality of the circumstances approach, the Supreme Court did not intend to burden the district court with reviewing in detail each position and each action taken in the course of litigation by the losing party.

Third, the mere fact that the losing party made a losing argument is not a relevant consideration; rather, the focus must be on arguments that were frivolous or made in bad faith. *See id.* at 1753 (fee awards are not to be used "as a penalty for failure to win a patent

infringement suit” (quoting *Park-In-Theatres*, 190 F.2d at 142)). To impose fees on a party simply for making losing arguments would be the same in effect as fully adopting the English Rule, whereby the losing party always pays the winner’s fees.

Fourth, the losing party’s conduct need not be “independently sanctionable” to justify an award of fees. *Id.* at 1756. “A district court may award fees in the rare case in which a party’s unreasonable conduct—while not necessarily independently sanctionable—is nonetheless so ‘exceptional’ as to justify an award of fees.” *Id.* at 1757. If a party’s conduct is independently sanctionable, courts already have authority to force it to pay the other party’s attorney’s fees caused by the unreasonable conduct. *See* Fed. R. Civ. P. 11(c)(4); Fed. R. Civ. P. 37; 28 U.S.C. § 1927. Furthermore, as the *Octane* Court explained, the Supreme Court has long recognized courts’ inherent power to shift fees “for ‘willful disobedience of a court order’ or ‘when the losing party has acted in bad faith, vexatiously, wantonly, or for oppressive reasons’” *Octane*, 134 S. Ct. at 1758 (omission in original) (quoting *Alyeska Pipeline Serv. Co. v. Wilderness Soc’y*, 421 U.S. 240, 258–59 (1975)). Interpreting § 285 to provide a duplicate remedy for conduct that is already sanctionable would render these other sources of fee-shifting authority “superfluous.” *Id.*

Fifth, the statute is directed to exceptional “cases.” Individual actions or arguments in the course of litigation that merit sanctions may be addressed through the court’s inherent powers or through statutes and rules of procedure intended for those purposes. The determination of whether attorney’s fees are warranted under § 285 should be a determination of whether in light of the totality of the circumstances the case *as a whole* is exceptional. In this regard, § 285 is of a kind with other statutes that allow district courts to award attorney’s fees to the prevailing party. *See, e.g.*, 15 U.S.C. § 1117(a) (Lanham Act); 17 U.S.C. § 505 (Copyright Act). The relevant

considerations are to be viewed together and at the conclusion of the case. The procedure for awarding attorney's fees under § 285 is governed by Rule 54(d) of the Federal Rules of Civil Procedure.

Sixth, the relevant considerations for a determination of whether a case is "exceptional" may include the conduct of the winning party—for example, whether the winning party advanced arguments in bad faith or committed litigation misconduct. As the Court emphasized in *Octane*, the decision to award attorney's fees is one of "equitable discretion." 134 S. Ct. at 1756 (quoting *Fogerty*, 510 U.S. at 534); *see also id.* at 1754 (describing the early cases under § 285 and its predecessor as taking a "holistic, equitable approach"); *Park-In-Theatres*, 190 F.2d at 142 ("The exercise of discretion in favor of such an allowance should be bottomed upon a finding of unfairness or bad faith in the conduct of the losing party, *or some other equitable consideration of similar force . . .*" (emphasis added)). The equitable force of bad conduct of the losing party may be diminished depending on the conduct of the winning party.

Finally, the standard of proof is a preponderance of the evidence, rather than clear and convincing evidence as before. *Octane*, 134 S. Ct. at 1758.

II

Here, Intel moves for an award of attorney's fees based on both the substantive lack of strength of Stragent's litigating positions and Stragent's conduct during litigation. Intel's motion is fairly characterized as taking the "kitchen sink" approach that this court concluded is unwarranted. Intel's arguments are in any event insufficient. In light of the standards discussed in the Supreme Court's decision in *Octane*, the court finds that this case is not "exceptional" and that Intel's motion for an award of attorney's fees should be denied.

Intel's motion is primarily based on the fact that Stragent made losing arguments. As explained above, that is not a ground for finding a case exceptional. Every case will have a loser. To show that the case is "exceptional" under § 285, Intel must show that it "stands out from others." *Octane*, 134 S. Ct. at 1756. Intel's arguments concerning aspects of Stragent's damages theory, Stragent's contention that nominal patent owner TAG Foundation had standing as a co-plaintiff, Stragent's proposed construction of claim 16 of the '072 patent, and Stragent's position that no supplemental claim construction was necessary are unavailing. These were losing arguments, but they were not frivolous.

Putting to one side Intel's "losing arguments" theory, Intel's main argument is that Stragent's theory of infringement was "implausible" and that "no reasonable litigant could argue" that the accused devices satisfied the claim limitations. Am. Mot. for Atty's Fees 5. The claim limitation at issue requires a "demultiplexer" that receives instructions "indicating which of [two CRC circuits] is to perform the CRC operation thereby providing an indicated circuit." '072 patent col. 7 ll. 6, 7–9. According to Intel, the plain language of the claim—"indicating which of the first and second circuits *is* to perform the CRC operation thereby providing *an* indicated circuit," *id.* (emphasis added),—means only one of the circuits is selected for each mode of operation. But Stragent's infringement theory was that Intel's accused devices satisfied the limitation by using one CRC circuit in one mode of operation and both CRC circuits in the other. Intel argues that "[s]imply put, two is not one, and no reasonable litigant could argue otherwise." Am. Mot. for Atty's Fees 5.

Stragent's argument was certainly a weak one, but despite the alleged implausibility of Stragent's position, Intel never sought summary judgment of non-infringement on the basis of the limitation at issue. This suggests that Intel did not always view Stragent's infringement

Finally, Intel argues that Stragent delayed in disclosing certain positions and in abandoning certain other claims and positions, and that this constituted litigation misconduct. It did not. Nor does this court see litigation misconduct in Intel's allegation that Stragent filed infringement suits against Intel customers in an effort to force a settlement of this case. Nor, contrary to Intel's position, did Stragent engage in bad faith discovery. The court notes that Intel never sought discovery sanctions against Stragent or even a court ruling limiting the scope of discovery.

10

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION

OPLUS TECHNOLOGIES, LTD.,

Plaintiff,

v.

SEARS HOLDINGS CORPORATION and
VIZIO, INC.,

Defendants.

Case No. 11-cv-8539

Judge Robert M. Dow, Jr.

**AMENDED MEMORANDUM OF POINTS AND AUTHORITIES IN SUPPORT
OF DEFENDANT VIZIO, INC.'S MOTION FOR ATTORNEYS' FEES AND EXPENSES
PURSUANT TO 35 U.S.C. § 285, 28 U.S.C. § 1927, AND THE COURT'S INHERENT
POWER**

for abuse of discretion, not under the *de novo* standard the Federal Circuit Court of Appeals had been applying. *Highmark, Inc. v. Allcare Health Mgmt. Sys., Inc.*, 572 U.S. ___, slip op. at 5 (2014) .

Although, as articulated in VIZIO's original motion, VIZIO was entitled to attorneys' fees and expenses under 35 U.S.C. § 285 under the previous, more rigid standards, VIZIO demonstrates with this Amended Memorandum that it is even more clearly entitled to recover its attorneys' fees and expenses from Oplus and its counsel under the new, more lenient and significantly broader "exceptional" case standard recently articulated by the Supreme Court. In this Amended Memorandum, VIZIO applies the new standards to the same facts and misconduct described in VIZIO's original Motion, asking this Court to award VIZIO the requested attorneys' fees and costs under the now applicable law.¹

II. PRELIMINARY STATEMENT

In December 2011, Oplus brought this patent infringement lawsuit against VIZIO and VIZIO's former customer Sears alleging infringement of U.S. Patents Nos. 6,239,842 (the "'842 Patent") and 7,271,840 (the "'840 Patent") (collectively, the "Patents-in-suit"). A month after answering Oplus' complaint, VIZIO moved this Court to stay Oplus' claims against Sears and to sever and transfer Oplus' claims against VIZIO to VIZIO's home forum in the Central District of California. Recognizing that Oplus sued Sears solely to maintain venue in this District, and that this case turned on whether VIZIO's products infringed, this Court granted VIZIO's motion,

¹ Since filing its original Motion, in order to minimize the number of disputes between the parties and the corresponding burden and expense, VIZIO has agreed not to pursue its attorneys' fees and expenses for any time entries that were either fully or partially redacted to protect privileged information. Additionally, the attorneys' fees and expenses sought in this Amended Motion include the additional fees and expenses VIZIO has incurred since the case in the Central District of California against VIZIO was resolved, and the case was reopened in this Court.

**IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION**

OPLUS TECHNOLOGIES, LTD.,

Plaintiff,

v.

SEARS HOLDINGS CORPORATION and
VIZIO, INC.,

Defendants.

Case No. 11-cv-8539

Judge Robert M. Dow, Jr.

**AMENDED DECLARATION OF ADRIAN M. PRUETZ IN SUPPORT OF DEFENDANT
VIZIO, INC.'S MOTION FOR ATTORNEYS' FEES AND EXPENSES PURSUANT TO
35 U.S.C. § 285, 28 U.S.C. § 1927, AND THE COURT'S INHERENT POWER**

August 2012	Exhibit G	\$ 16,567.50	\$ 0.00
September 2012	Exhibit H	\$ 12,575.25	\$ 648.60
October 2012	Exhibit I	\$ 352.50	\$ 0.00
February 2014	Exhibit T	\$ 17,748.50	\$ 0.00
March 2014	Exhibit U	\$ 19,535.80	\$ 0.00
April 2014	Exhibit V	\$ 23,915.50	\$ 0.00
Total:		\$ 199,911.80	\$ 2,664.00

13. The numbers in the chart above were calculated as follows:

- Any time entry that contains any redaction, even partial, is not included.
- For attorneys' fees incurred prior to the stay of Oplus' claims against Sears and the severance and transfer of Oplus' claims against VIZIO to the Central District of California on June 25, 2012, the full amount is included.
- For attorneys' fees incurred between June 15, 2012, when Oplus' claims against Sears were stayed and Oplus' claims against VIZIO were severed and transferred to the Central District of California, and October 3, 2012, when the MDL proceeding was terminated, attorneys' fees were included in their entirety if the corresponding time entry was solely directed to the MDL proceeding, and half of the attorneys' fees were included if the corresponding time entry was directed to both the MDL proceeding and the Central District of California proceeding.
- For attorneys' fees incurred during or after February 2014, which are related to the entry of judgment in favor of Sears and this Motion, the full amount is included for any time entries that do not contain redactions.

14. Concurrently filed confidentially under seal as Exhibit A is a true and correct redacted copy of Glaser Weil's Invoice 144206 to VIZIO dated March 15, 2012 and co-counsel

**IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION**

OPLUS TECHNOLOGIES, LTD.,)	
Plaintiff,)	
	)	Case No. 11 CV 8539
v.)	
	)	Judge Robert M. Dow, Jr.
SEARS HOLDING CORPORATION, et al.,)	
Defendants.)	

ORDER

For the reasons set forth below, the Court denies the combined motion and supporting brief of Oplus and Niro, Haller & Niro requesting fees and expenses [94 and 96]. Notice of motion date of 9/16/14 is stricken and no appearances are necessary on that date. This case is closed.

STATEMENT

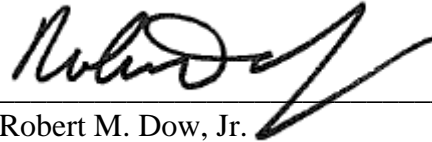
On July 18, 2014, Judge Mason issued a Report and Recommendation [84] setting forth his recommended disposition of Defendant Vizio, Inc's motion for attorneys' fees and expenses pursuant to 35 U.S.C. § 285, 28 U.S.C. § 1927, and the Court's inherent power [53]. Judge Mason recommended that the Court deny Vizio's motion for attorneys' fees and expenses. Defendant Vizio objected to the Report and Recommendation, but the Court overruled those objections and adopted Judge Mason's conclusion that Oplus's conduct in this district, although "impermissible forum shopping," was not egregious enough to warrant any award of fees. Plaintiff Oplus and its counsel now seek reimbursement for fees and expenses incurred in responding to Vizio's request for fees and expenses.

Much like Vizio's objections to Magistrate Judge Mason's Report and Recommendation, Oplus's request for fees in this instance misses the mark. Instead of appreciating the fact that its tactical decision to bring suit against Vizio and Sears—dubbed by Judge Mason as an "ill-advised decision to name Sears as a defendant in an attempt to establish venue here" and by this Court as "impermissible forum shopping"—narrowly escaped the imposition of attorneys' fees and expenses (by both the California court as well as this Court), Oplus turns around and, in now accusing Vizio of unwarranted tactics, again "multiplies the proceedings in [this] case." Fortunately, Oplus's tactics do not even warrant a response from Vizio, and so the generation of even more fees in this case will be averted.

Oplus's decision to seek fees, given its own questionable conduct both before this Court and in California, is unfortunate. Both parties were chastised by Judge Pfaelzer in the Central District of California for "delays and avoidance tactics" and Oplus specifically was admonished for engaging in "tactics in this litigation [that] have been vexatious and meet the standard for litigation misconduct." Although Judge Pfaelzer declined to award fees to Vizio, her comments, as well as the parties brief, albeit contentious, stop in this Court, served as fodder for denying Vizio's request for fees and equally and strongly point in the direction of denying Oplus's request for fees as well.

To continue to litigate a matter which is so clearly dead is frustrating to the judicial process. Oplus's motion, filled with hearsay statements about what it believes Vizio's tactics to be, coupled with its own questionable conduct in this litigation, falls far short of moving this Court to award fees under Federal Rule of Civil Procedure 11 or 28 U.S.C. 1927. As noted by the Court in adopting Judge Mason's decision, "[g]iven the high stakes often involved in patent litigation, parties and their counsel often pull out all of the stops in pursuit of an edge." It's time for these tactics to stop and for each side to take its ball and go home.

Dated: September 10, 2014



Robert M. Dow, Jr.
United States District Judge

United State District Court, Northern District of Illinois

Name of Assigned Judge or Magistrate Judge	Judge James B. Zagel	Sitting Judge if Other than Assigned Judge	
CASE NUMBER	10 CV 4298	DATE	December 7, 2012
CASE TITLE	ILLINOIS COMPUTER RESEARCH v. BEST BUY STORES, L.P.		

DOCKET ENTRY TEXT:

Defendant's motion for attorney fees and expenses is GRANTED.

STATEMENT

Before the Court is Defendant's motion for attorney fees and expenses filed pursuant to 35 U.S.C. § 285 and 28 U.S.C. § 1927. For the following reasons, the motion is GRANTED.

Facts

This is a patent infringement case. In July 2010, Plaintiff Illinois Computer Research ("ICR") sued Defendants for their alleged role in designing, developing and selling "Rocketfish" sound cards. Plaintiff alleged that the Rocketfish cards infringed U.S. Patent No. 7,154,819 ('819 Patent). On July 29, 2010, I granted summary judgment to Defendants, finding that the Rocketfish cards were covered by a patent license and settlement agreement ("License Agreement") that Plaintiff entered into with Creative Products ("Creative") and Sears Roebuck in this court. *Illinois Computer Research, LLC v. Sears Roebuck And Co.*, Case No. 10-cv-190 (N.D. Ill. Jan 12, 2010). The License Agreement was very broad. It granted Creative, Creative's Affiliates, and Authorized Third Parties of Creative (including Creative's "customers" and "resellers") the right under the '819 Patent to make, use, import, export, offer for sale, sell, and otherwise exploit or dispose of Creative Products. Under the terms of the License Agreement, Creative Products included "any and all . . . products . . . made, used, sold, offered for sale, or imported by or for" Creative and/or Creative's Affiliates.

One month after Plaintiff entered into the License Agreement it filed the instant lawsuit. Shortly thereafter, Creative's in-house counsel, Russell Swerdon, contacted Plaintiff's counsel, Sally Wiggins, and informed her that the accused Rocketfish cards were made by Creative and were thus licensed products. Creative's counsel requested that Plaintiff dismiss the suit. In support, Mr. Swerdon sent Wiggins a photograph of one of the accused cards, which conspicuously displayed Creative's mark on the sound card's chip. Mr. Swerdon also offered to provide additional documentation and assistance to help Ms. Wiggins confirm that the accused products were covered by their license agreement. Ms. Wiggins ignored Mr. Swerdon's overtures to assist with an investigation and refused to dismiss the case. Her primary basis for continuing with the suit appears to have been the fact that during negotiations with ICR over the License Agreement, Creative did not mention that it was the designer and manufacturer of Rocketfish cards, even though ICR mentioned that it was reviewing possible infringement by Rocketfish.

On October 13, 2010, Defendant's counsel sent a letter to Ms. Wiggins that laid out in detail why the accused Rocketfish sound cards were covered by the License Agreement. After this explanation, the letter stated "[t]o the extent that you continue to believe that you have a valid basis for proceeding with this lawsuit, despite the above, please let us know the basis, or otherwise dismiss this case, by October 20th."

Otherwise, Defendant's counsel warned, he would move for summary judgment and seek attorney fees and expenses. Rather than point to a valid basis for continuing the suit, Ms. Wiggins responded "your letter was littered with self serving argument. I explained our response to Russ Swerdon. Perhaps he did not pass it on."

Defendant moved for summary judgment. Plaintiff opposition was based mostly on frivolous challenges to the reliability of certain evidence. The one argument Plaintiff raised on the merits—that Creative acted as a foundry in contravention of Section 3.2 of the license agreement—was unsupported by the record. On June 29, 2011, I granted summary judgment, finding that the accused cards were subject to the License Agreement between Plaintiff and Creative. On August 2, 2011, Plaintiff filed a motion to reconsider in which it improperly raised new arguments. I denied the motion to reconsider on the grounds that the arguments should have been raised prior to judgment. *United States v. Resnick*, 594 F.3d 562, 568 (7th Cir. 2010).

Analysis

A district court may award attorney fees to a prevailing party in patent litigation if the court determines that the case is "exceptional." 35 U.S.C. § 285. A case may be deemed "exceptional" if the court finds there has been (1) litigation misconduct, or 2) the patentee brought the litigation in bad faith and the litigation is objectively baseless. *EON-NET LP v. Flagstar Bancorp*, 653 F.3d 1314, 1324 (Fed. Cir. 2011). Litigation misconduct has "many varieties . . . including lodging frivolous filings and engaging in vexatious or unjustified litigation." *Id.* (citing *Takeda Chem. Indus., Ltd. V. Mylan Labs., Inc.*, 549 F.3d 1381, 1387-1388 (Fed. Cir. 2008)). The prevailing party must prove the exceptional nature of the case by clear and convincing evidence. *See Forest Labs., Inc. v. Abbott Labs.*, 339 F.3d 1324, 1327 (Fed. Cir. 2003).

Additionally, an attorney who "unreasonably and vexatiously" multiplies proceedings may be personally sanctioned for the other party's costs, expenses and attorneys' fees. 28 U.S.C. § 1927. Unreasonable and vexatious conduct under 28 U.S.C. § 1927 requires a showing of "objectively unreasonable behavior" and subjective or objective bad faith. *Kotsilieris v. Chalmers*, 966 F.2d 1181, 1183-85 (7th Cir. 1992).

I am willing to accept Plaintiff's representation that it did not initiate this lawsuit in bad faith. However, Plaintiff's continuation of this suit after Mr. Swerdon (1) told Ms. Wiggins the accused products were licensed, (2) provided convincing documentation in support, and 3) offered any additional documentation needed, constituted vexatious and unjustified conduct. After these communications, it was no longer reasonable (if it ever was) for Ms. Wiggins to rely on Creative's failure to disclose its relationship with Rocketfish during negotiations over the License Agreement as a basis to believe that the license did not cover Rocketfish. As Ms. Wiggins herself admits, Creative was not required to disclose its connection to Rocketfish. By entering into such a broadly worded license agreement, Plaintiff assumed the risk that some products not known to it at the time would be protected. When confronted with strong evidence that the Rocketfish cards were just such a product, Plaintiff had a duty to thoroughly investigate before proceeding further with the litigation. *See In re TCI Ltd.*, 769 F.2d 441, 445 (7th Cir. 1985) ("If a lawyer pursues a path that a reasonably careful attorney would have known, after appropriate inquiry, to be unsound, the conduct is objectively unreasonable and vexatious."). Instead, she buried her head in the sand. At the very least, this constituted extreme negligence. *See Kotsilieris*, 966 F.2d at 1185.

The most cursory of investigations would have confirmed that the Rocketfish Sound Cards were subject to the License Agreement. For example, the accused product's image and description that appear on the very webpage Plaintiff attached to its Complaint prominently display Creative's X-Fi registered trademark. Plaintiff knew that the X-Fi mark belonged to Creative because it was an X-Fi product that was accused of infringement in the *Sears* litigation. Another of the accused products actually has the name "Creative"

prominently displayed on the product (an image of this product was sent to Plaintiff's counsel). Additionally, the product user manuals, which were available on Best Buy's Rocketfish website, repeatedly refer to Creative. These facts render Ms. Wiggins statement that "to me, the source of the sound cards always appeared to be 'Rocketfish,'" incredible. At the very least, these facts demonstrate that the accused products consisted of a "combination" of "methods, systems, products, solutions or services of any Person that are used by, for or with Creative, Creative's Affiliates, or Creative Products," and were therefore licensed. (Patent License and Settlement Agreement, Dkt. No. 50.1 at 2-3).

Plaintiff argues that, despite this clear evidence, it was justifiably skeptical of Creative's counsel's representations that the Rocketfish cards were licensed. This is because Creative's counsel 1) did not mention that Creative had anything to do with Rocketfish Sounds cards during negotiation of the license agreement, and 2) because the two "affiliates" at issue in this case were not disclosed in Creative's Local Rule 3.2 statement in the *Sears* case. As explained above, I reject the first argument. As to the second, the "affiliates" at issue in this case are subsidiaries of Creative. Local Rule 3.2 does not require a party to identify its subsidiaries so this omission could not have formed the basis of any good faith reason to doubt Creative's representations that Ectiva was an affiliate. The fact is, Plaintiff had no factual basis to doubt Mr. Swerdon's representations, and could have easily resolved any outstanding questions by accepting his offer to provide additional documentation. Instead, Plaintiff chose to close its eyes, cover its ears, and forge ahead with costly litigation.

Plaintiff needed some factual basis in order to continue the litigation without demonstrating objective bad faith. That it had no such basis was made clear at summary judgment. Unable to point to anything in the record to controvert the clear documentary evidence and sworn statements obtained by Defendants, Plaintiff lodged a series of frivolous evidentiary challenges and alleged that Ectiva acted as a foundry for Best Buy. This was a meritless argument, based on a strained reading of the manufacturing agreement between Ectiva and Best Buy that was directly refuted by the factual record. After that effort failed at summary judgment, Plaintiff filed a motion to reconsider in which it improperly raised new legal arguments that were equally as meritless as those contained in its summary judgment papers. I do not find Ms. Wiggins' explanation of why she believed "critical questions" remained unanswered after summary judgment to be credible. Even if there were such questions, it was her responsibility to raise them at summary judgment, not in a motion to reconsider.

Finally, in response to the instant motion, Plaintiff has filed a series of documents related to Creative's corporate structure and Rocketfish's website which, ostensibly, are intended to demonstrate that Plaintiff had a good faith basis for believing the accused products were not licensed. The problem with these documents is twofold. First, they in no way demonstrate that Rocketfish designs or manufactures the accused products, as Plaintiff represents. Second, in what I regard as a further demonstration of bad faith, none of these documents were filed in response to Defendants' summary judgment motion and there is no reason to believe that Plaintiff relied on these documents at any previous point in this litigation. Plaintiff's filing of these documents now, I can only infer, is a misleading post hoc attempt to construct an investigation that should have been conducted prior to filing suit.

Based on Plaintiff's failure to conduct an adequate pre-filing investigation, maintenance of the lawsuit in the face of strong evidence that the accused products were licensed, failure to conduct a reasonable investigation to refute this evidence, refusal to accept further documentary evidence from Creative's counsel, frivolous arguments raised at summary judgment, improper and equally frivolous arguments raised in its motion to reconsider, and improper attempt to introduce evidence now that should have been presented at the summary judgment stage, I find that Defendants have shown by clear and convincing evidence that they are entitled to fees under both 35 U.S.C. § 285 and 28 U.S.C. § 1927. ICR is liable for fees and expenses incurred by

Order Form Rev 06/2012)

Defendants pursuant to 35 U.S.C. § 285. ICR's attorney, Sally Wiggins, is responsible for the fees and expenses pursuant to 28 U.S.C. § 1927. The parties are jointly and severally liable.

Reasonableness of Fees

Plaintiff argues it should not have to pay Defendant's attorney fees because Defendant has been indemnified by Creative. I reject this argument. "In determining the compensatory quantum of an award under § 285 in an egregious case, courts should not be, and have not been, limited to reimbursement of only those amounts actually paid by the injured named party." *Automated Business Companies, Inc. v. NEC America, Inc.*, 202 F.3d 1353 (C.A.Fed. (Tex.), 2000). Plaintiff cites no authority in support of the argument that this rule should not be applied to 28 U.S.C. § 1927. Indeed, the purposes of both statutes would be ill-served if a party who has engaged in vexatious conduct is able to avoid fees based on the happenstance of an opponent's indemnity arrangement.

Plaintiff has not overcome the longstanding rule in the Seventh Circuit that paid expenses are presumed to be reasonable. *Stark v. PPM America, Inc.*, 354 F.3d 666, 675 (7th Cir. 2004). The expenses were paid in full and I see no grounds for second guessing the market.

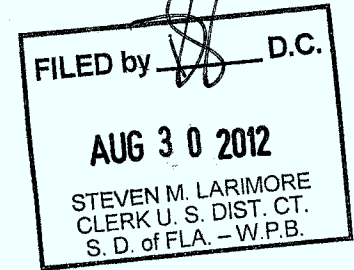
Conclusion

For the foregoing reasons, Plaintiff ICR and Ms. Wiggins are hereby ORDERED to pay Defendant fees in the amount of \$173,294.27 pursuant to 35 U.S.C. § 285 and 28 U.S.C. § 1927.

¹ Of course, Plaintiff had a duty to investigate prior to even filing suit. *See View Engineering v. Robotic Vision Systems*, 208 F.3d 981, 986 (Fed. Cir. 2000). I focus on Plaintiff's conduct after communicating with Mr. Swerdon because that is when any claim of ordinary negligence ceases to be plausible.

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF FLORIDA

Case No. 09-81046-CIV-RYSKAMP/HOPKINS



INNOVATIVE BIOMETRIC
TECHNOLOGY, LLC,

Plaintiff,

FILED UNDER SEAL

v.

TOSHIBA AMERICA INFORMATION
SYSTEMS, INC.,

Defendant,

and

AUTHENTEC, INC.,

SEALED

Intervenor.

**ORDER GRANTING MOTION FOR FEES AND COSTS, REQUESTING SUBMISSION
OF MATERIALS FOR IN CAMERA REVIEW AND GRANTING MOTION TO STRIKE**

THIS CAUSE comes before the Court pursuant to Defendants' consolidated motion for attorneys' fees and costs, filed November 28, 2011 [DE 289]. Plaintiff responded on December 6, 2011 [DE 297]. Defendants replied on December 13, 2011 [DE 304]. This cause is also before the Court pursuant to Defendants' motion to strike the declaration of Robert A. Vitale, filed December 13, 2011 [DE 302]. Plaintiff responded on December 28, 2011 [DE 307]. Defendants replied on January 1, 2012 [DE 308]. The Court held a hearing on these motions on March 30, 2012. Intervenor AuthenTec, Inc. filed a supplemental brief on April 13, 2012 [DE 321], to which Plaintiff responded on April 17, 2012 [DE 325]. AuthenTec replied on April 24, 2012 [DE 331]. These motions are ripe for adjudication.

I. BACKGROUND

IBT is a non-capitalized entity without products, employees or sales. Scott Harris (“Harris”), the inventor of the ‘016 patent, is an experienced patent prosecutor and is a former principal at the Fish & Richardson law firm. While still at Fish & Richardson, Harris prosecuted patents in his own name, including the ‘016 patent. In 2006, Harris began enforcing his patents through litigation with the help of the Niro Haller & Niro law firm. In 2007, Harris filed suits against Dell and Google, both Fish & Richardson clients. Harris was asked to and did resign shortly thereafter. Harris then “sold” his patents to a number of shell companies. At least six Harris-related shell companies, IBT included, are purportedly “owned” and “controlled” by James Beauregard Parker (“Parker”), a Florida attorney. Parker created IBT on July 27, 2007 and is listed as its sole owner and managing partner. Parker admitted that he never made the capital contribution required under IBT’s formation document, nor did he maintain a bank account or accounting papers for IBT. Parker admitted that he would follow Harris’s directions with regard to corporate affairs involving any Harris patents.

On July 30, 2007, pursuant to a Patent Sale Agreement, Harris transferred the ‘016 patent to IBT. IBT was to enforce the ‘016 patent, with Harris receiving 70% of the proceeds. The Niro firm decides which companies IBT will accuse of infringement and when and how to commence enforcement efforts and has authority to file complaints and pursue other litigation strategies on behalf of IBT.

In early 2009, the Niro firm sent notice letters and claim charts regarding the alleged infringement of the ‘016 patent to several parties. Each party independently reviewed the claims

and responded with the same substantive argument, informing IBT that its interpretation of the “limited exception mode” would not withstand scrutiny and that prior art invalidated the patent.¹

Undeterred, IBT filed an amended complaint on February 12, 2010. Trial was set for December 2011. Claim construction briefing concluded on February 25, 2011. IBT’s claim construction materials included the same infringement claim charts that it included with its notice letters.

On March 15, 2011, the Court issued an order indicating an intent to appoint a special master. Defendants opposed the proposed appointment and moved for summary judgment on March 25, 2011. IBT did not respond to the summary judgment motion and pressed the Court to appoint the special master. Notably, IBT still had not taken any depositions by that time. IBT even suggested that its own claim constructions could be wrong and filed a Rule 56(d) declaration in which counsel affirmed under oath that additional discovery was necessary to form a substantive response to the summary judgment motion.

After filing its Rule 56(d) declaration, IBT pursued and obtained discovery from each Defendant. Depositions IBT conducted demonstrated no real efforts to pursue any questioning with AuthenTec regarding the functionality or material differences between the Protector Suite software cited in IBT’s infringement contentions and the Protector Suite identified as invalidating prior art in Defendants’ Motion for Summary Judgment. It is also evident from the record that IBT’s counsel did not thoroughly examine documents produced during discovery. On the last day of the discovery period, IBT alleged that AuthenTec withheld broad categories of

¹ The Veridicom prior art disclosed prior to the filing of this action is a later version of the same Veridicom software that Defendants asserted as invalidating prior art in their summary judgment motion.

documents – even though the documents were produced nearly a month prior, along with an index for reference purposes.

After the close of discovery, the Court set a hearing on the summary judgment motion even though IBT had not substantively responded to same. At the eleventh hour, IBT requested permission to respond on the merits to the summary judgment motion, again seeking to delay any type of ruling on the merits. The Court granted permission to respond, stating that “Defendants and Intervenor are understandably upset...The Court, too, wishes that Plaintiff had not waited until the eleventh hour to file this motion.”

IBT responded to the summary judgment motion on July 5, 2011. The opposition did not cite to a single piece of the discovery that counsel had attested under oath in the Rule 56(d) declaration was needed to oppose the summary judgment motion. Instead, IBT attached the declaration of Dr. Koopman, who had a long-standing relationship with the Niro firm and had been retained for this case by March 9, 2011 – before the filing of the summary judgment motion.

The record evidence contradicted Dr. Koopman’s opinions on every dispositive factual issue. For example, Dr. Koopman claimed that the Veridicom PCT application does not directly or inherently disclose “decrypting.” But the Veridicom PCT application expressly teaches using “cryptographic storage techniques” to store biometric features and references the co-pending Veridicom patent application for those techniques. Dr. Koopman also ignored that the co-pending Veridicom patent application specifically states: “[a]ccording to another aspect of the present invention,...a cryptographic key can be generated...from the user’s fingerprint. This cryptographic key can be used to decrypt information meant for the user.” (Ex. 20, disclosing encryption, including use of cryptographic keys and codes.) Dr. Koopman made a similar claim

with regard to the BioLogon materials, but his opinion was again contradicted on the face of the materials. His theory of why decryption was not necessary to compare fingerprints was refuted by a textbook authored by experts in the field of fingerprint matching who were not paid by the Niro firm or any party in this matter to offer an opinion in this case. Fujitsu told IBT in September 2009 that, when it comes to fingerprints, matching is not as simple as comparing whether "A=B" – and yet the entirety of Dr. Koopman's opinion rests on that notion.

At the summary judgment hearing, the Court expressed serious concerns about IBT's position:

Now, the defendants have supplied the Court with a number of statements and exhibits indicating that for some years this information – I should say for some years even prior to this patent that fingerprint recognition was an accepted method, others have used it, and there's another patent involved in it.

And I may be missing something here, but this seems like a fairly simple case. I know you're making it very complicated with a lot of talk....Now, there might be some unusual little variance to this thing, which I don't know how significant it would be, but it seems to me that this technology has been around....

Transcript, 6:5-18 (Ex. 22). During the hearing, the undersigned noted IBT's improper strategy in this case:

What you're really saying is there's nobody financially responsible on the plaintiff's side for all of the costs they're incurring to the defendant....That's so typical of these kinds of claims. You've got nothing to lose. Because if you lose, you're not going to pay anything. If you win, you might get paid nuisance value or something like that. I would be interested in how big the settlements were with the people you settled with. They're probably nominal settlements, weren't they?...And that's what I'm concerned with....

Id., 42: 20-22; 43: 4-10; 43: 17-19 (Ex. 22).

The undersigned also stated that once it discovered the truth, it would punish the party that was misrepresenting the facts: “And there’s going to be serious consequences to this if it eventually appears who is not telling the truth in this case.” *Id.*, 32: 22-24. IBT then urged the Court to delay ruling on the summary judgment motion until a special master construed the claims.

Following the hearing, the Court informed the parties that it intended to appoint Stanford Law School professor Mark Lemley as special master and also indicated that IBT would have to pay \$30,000. Even though IBT previously urged the Court to appoint a special master, IBT now opposed the appointment of a special master and objected to paying the \$30,000. The Court appointed Professor Lemley over IBT’s objections. IBT posted the \$30,000 bond, then settled with Fujitsu. AuthenTec and Toshiba refused to settle, however. With judgment day approaching and with the possibility that the special master was already using IBT’s bond money, IBT unilaterally issued a covenant not to assert and moved to dismiss the case with prejudice.

IBT never notified Defendants of its intent to file the covenant not to assert and to dismiss this case with prejudice. IBT never informed the Court that it had not notified Defendants of its filing. Accordingly, the Court granted the motion to dismiss with prejudice before Defendants responded. Defendants filed a motion to vacate.

IBT claimed that it moved to dismiss because the matter was no longer worth pursuing in light of the “de minimus” remaining “damages,” but this contention is incredible given that

Toshiba is a major U.S. computer supplier – significantly larger than ACI, MSI and others who settled. Essentially, there was no possibility of securing a damages award, as judgment day had arrived, and there was no possibility of a final settlement with either AuthenTec or Toshiba.

IBT's sudden and unilateral effort to withdraw from this case confirms that it never intended to try this case on the merits. Rather, IBT and its counsel used this Court and the judicial system as a tool in their extortive efforts. In a role reversal, it was *Defendants* that sought to move this case to judgment, with the plaintiff dragging its feet. Even though IBT only filed claims of indirect infringement, IBT never pursued the third party discovery required to prove its case. IBT's witness list, which does not identify any actual infringing user, speaks volumes.

Discovery confirmed that IBT conducted little, if any, pre-filing investigation. It was unable to provide any evidence that it obtained the accused products, tested the accused products, or conducted prior art searches before filing suit. The only reference to any examination of a potentially infringing device was Scott Harris's self-serving statements that he happened to already own a Lenovo laptop and that his children happened to use a Toshiba laptop. When asked about IBT's pre-filing investigation as IBT's 30(b)(6) witness on this topic, Harris was instructed not to answer questions relating to the pre-filing investigation, and IBT produced no documents evidencing any pre-suit investigation.

IBT continues to take frivolous positions to avoid liability. When it first secured dismissal in this matter (an order that was subsequently vacated), Defendants served a draft bill of costs and supporting documentation seeking less than \$20,000 in compensation. IBT's lead trial counsel, Mr. Ray Niro, refused to engage in a meaningful meet and confer, objecting to the

costs but refusing to explain the legal basis for his objection, stating: “File your motion and you’ll see why.” Although Defendants withdrew their requests for statutory costs when the Court re-opened this case, IBT’s opposition arguments were even more outrageous. IBT proclaimed that Defendants were not “prevailing parties,” ignoring cited controlling Federal Circuit case law holding on identical facts that the Defendants were the prevailing party. IBT argued that fees could not be awarded because “this Court had used its discretion to dismiss all claims pursuant to 41(a)(2) and close this case.” IBT, its principals and attorneys continue to evidence their deliberate disregard for this Court and the financial harm they have imposed on Defendants.

II. DISCUSSION

A. **Retention of Jurisdiction**

This Court retains jurisdiction to award fees and costs even after a voluntary dismissal is requested. A court’s jurisdiction to impose fees, costs or sanctions continues even if the court is without subject matter jurisdiction over the underlying action. *See Cooter & Gell v. Hartmarx Corp.*, 496 U.S. 384, 395 (1990) (“It is well established that a federal court may consider collateral issues after an action is no longer pending.”); *Willy v. Coastal Corp.*, 503 U.S. 131, 138-39, 112 S.Ct. 1076, 1081 (1992) (court may impose sanctions even if it is later determined to be without subject matter jurisdiction). IBT’s covenant not to assert and requested dismissal does not prevent this court from awarding fees and costs. *See Cooter & Gell*, 496 U.S. at 396 (“Like the imposition of costs, attorney’s fees, and contempt sanctions, the imposition of a Rule 11 sanction is not a judgment on the merits of an action....Such a determination may be made after the principal suit has been terminated.”).

IBT relies on *Super Sack Mfg. Corp. v. Chase Packaging Corp.*, 57 F.3d 1054, 1059 (Fed. Cir. 1995) for the proposition that the filing of a covenant not to sue in a patent infringement case immediately divests the Court of subject matter jurisdiction. If the covenant not to sue complies with *Super Sack*, the Court is divested of jurisdiction only over the declaratory judgment claims, not the affirmative infringement claims.

B. Bases for Fees and Costs Award

The Court is empowered to award attorneys' fees and costs under four separate grounds: Rule 41(a)(2), 35 U.S.C. § 285, Rule 56 and 28 U.S.C. § 1927.

1. Rule 41(a)(2)

A voluntary dismissal under Rule 41(a)(2) may be conditioned upon reimbursement of a defendant's litigation-related expenses. The decision to grant a voluntary dismissal and the conditions accompanying same are entrusted to the Court's discretion. "[A] plaintiff may only voluntarily dismiss an action 'by court order, on terms that the court considers proper'" under Rule 41(a)(2). Thus, the Court maintains the "power to set terms and conditions" of any such dismissal. *See Tesma v. Maddox-Joiner, Inc.*, 254 F.R.D. 699, 702 (S.D. Fla. 2008). Pursuant to Rule 41(a)(1)(i), once a party files an answer or a motion for summary judgment, a plaintiff has no right to an unconditional dismissal of his action.

The Court elects to set two conditions to IBT's dismissal of its action. First, IBT's covenant not to assert will run with the '016 patent so as to bar enforcement against Defendants, including Defendants' customers and supply chain, by any future patent owner. This condition is necessary to protect Defendants from any possibility of another lawsuit concerning the '-16

patent. A covenant not to assert, like a license, may be considered a promise of the patent owner not to sue. *See Transcore, LP v. Electronic Transaction Consultants Corp.*, 563 F.3d 1271, 1276 (Fed. Cir. 2009). Thus, a covenant not to assert may be personal and non-transferrable, thereby allowing the next owner able to bring another suit. Ownership of the '016 patent can contractually revert to Harris because of IBT's failure to meet the contractual milestone of paying Harris \$1,000,000 in licensing revenue. Second, the Niro firm, Harris, Parker and IBT have demonstrated a disregard for a contractual obligation in that they sued ACI even though they were each a party to a covenant not-to-sue that precluded the suit against ACI.

Second, IBT will be required to reimburse Defendants' litigation expenses. A "plaintiff ordinarily will not be permitted to dismiss an action without prejudice under Rule 41(a)(2) after the defendant has been put to considerable expense in preparing for trial, except on the condition that the plaintiff reimburse the defendant" for litigation expenses. *McCants v. Ford Motor Co.*, 781 F.2d 855, 860 (11th Cir. 1986) (remanding case for ruling on defendant's request that conditions be attached to any dismissal of case) (citations omitted); *see also McCants v. Ford Motor Co.*, 789 F.2d 1539, 1540 (11th Cir. 1986) (affirming court's decision to require plaintiff to reimburse defendant's litigation expenses). Reimbursable costs "may include all litigation-related expenses incurred by the defendant, including reasonable attorneys' fees." *See McCants*, 781 F.2d at 860. Courts in this district routinely condition a plaintiff's request for voluntary dismissal under Rule 41(a)(2) on reimbursement of a defendant's litigation expenses. *Tesma*, 254 F.R.D. at 701-02 (requiring payment of costs and fees as condition of dismissal where defendant "forced to litigate [meritless claims] without reason"); *Sobe News, Inc. v. Ocean Drive Fashions, Inc.*, 199 F.R.D. 377, 378 (S.D. Fla. 2001) (conditioning voluntary dismissal on

reimbursement of defendants litigation expenses); *In re Great Lakes Dredge & Dock Co.*, 179 F.R.D. 336, 340 (S.D. Fla. 1996) (finding plaintiff “abused the process of this Court” and conditioning voluntary dismissal on reimbursement of defendant’s litigation expenses). An award of attorneys’ fees and litigation costs as a condition of dismissal is warranted here.

2. 35 U.S.C. § 285

This case is exceptional under 35 U.S.C. § 285. Defendants are prevailing parties in light of IBT’s voluntary dismissal of all claims. *Highway Equip Co. Inc. v. FECO, Ltd.*, 469 F.3d 1027, 1036 (Fed. Cir. 2006) (Rule 41(a)(2) dismissal after a covenant not to sue has been granted confers prevailing party status on dismissed defendant); *Mathews v. Crosby*, 480 F.3d 1265, 1276 (11th Cir. 2007) (“The Defendants, having obtained from [Plaintiff] a voluntary dismissal with prejudice, are considered prevailing parties.”).

Prevailing parties may be awarded attorneys’ fees under 35 U.S.C. § 285 when the court determines that: (1) the case is “exceptional” by clear and convincing evidence; and (2) an award of attorneys’ fees, in the Court’s discretion, is appropriate. *See Eon-Net LP v. Flagstar Bancorp*, 653 F.3d 1314, 1323-24 (Fed. Cir. July 29, 2011). “The decision to award attorney fees is within the discretion of the trial judge, but the conclusion that a case is exceptional is a finding of fact reviewable only for clear error.” *Takeda Chem. Indus. v. Mylan Labs.*, 549 F.3d 1381, 1385 (Fed. Cir. 2008) (case is exceptional and Takeda awarded \$16,800,000 for attorney fees, expenses, and expert fees, plus interest) (citing *Beckman Instruments, Inc. v. LKB Produkter AB*, 892 F.2d 1547, 1551 (Fed. Cir. 1989) (remanding exceptional case for new determination of fees)).

Several factors weigh in favor of an exceptional case finding against a patent plaintiff, including litigation misconduct, submission of frivolous finding, vexatious or unjustified litigation, or maintenance of a meritless claim. “[M]any varieties of misconduct can support a district court’s exceptional case finding, including lodging frivolous filings and engaging in vexatious or unjustified litigation.” *Eon-Net*, 653 F.3d at 1324 (citing *Takeda*, 549 F.3d at 1387-88). “Litigation misconduct and unprofessional behavior are relevant to the award of attorney fees, and may suffice to make a case exceptional.” *Taltech Ltd. v. Esquel Enters.*, 604 F.3d 1324, 1329 (Fed. Cir. 2010) (citing *Sensonics, Inc. v. Aerosonic Corp.*, 81 F.3d 1566, 1574 (Fed. Cir. 1996)). Examples of misconduct include the failure to engage in good faith discovery or litigation efforts, lodging frivolous filings, causing undue delay, or engaging in vexatious and unjustified litigation. *Eon-Net*, 653 at 1324 (citing *Takeda*, 549 F.3d at 1387-88)).

Absent misconduct, sanctions under this provision “may be imposed against the patentee only if both (1) the patentee brought the litigation in bad faith; and (2) the litigation is objectively baseless.” *Id.* at 1324. Specifically, a case is deemed “exceptional when a patentee maintains its claims after realizing, or on reasonable investigation should know, that its claims are baseless. Moreover, a court may infer bad faith where a patentee is manifestly unreasonable in assessing infringement, while continuing to assert infringement....” *F&G Research, Inc. v. Google Inc.*, No. 06-60905-CIV, 2007 WL 2774031, at *12 (S.D. Fla. 2007) (citations omitted). Bad faith may be inferred when a patentee’s contentions are manifestly unreasonable: “Where, as here, the patentee is manifestly unreasonable in assessing infringement, while continuing to assert infringement in court, and inference is proper of bad faith, whether grounded in or denominated wrongful intent, recklessness, or gross negligence.” *Eltech Sys. Corp. v. PPG Indus., Inc.*, 903

F.2d 805, 811 (Fed. Cir. 1990). A plaintiff's pre-filing preparation is also relevant – including an analysis (or lack thereof) of the accused products, preparation of claim charts, and good-faith efforts to construe the claims. *See Superior Fireplace Co. v. Majestic Prods. Co.*, 270 F.3d 1358, 1378 (Fed. Cir. 2001) (remanding case to determine whether attorneys' fees were warranted, including an assessment of plaintiff's pre-filing diligence. This Court has defined a "frivolous suit" as one "where the patentee knew, or should have known by reasonable investigation, that the suit was groundless." *F&G Research*, 2007 WL 2774031, at *12. A case can be found to be exceptional if it is objectively meritless, or where the plaintiff is objectively reckless in initiating or maintaining the action. *See iLOR, LLC v. Google, Inc.*, 631 F.3d 1372, 1377 (Fed. Cir. 2011) ("The objective baselessness standard for enhanced damages and attorneys' fees against a non-prevailing plaintiff under *Brooks Furniture* is identical to the objective recklessness standard for enhanced damages and attorneys' fees against an accused infringer for § 284 willful infringement actions under *In Re Seagate Technology, LLC*, 497 F.3d 1360 (Fed. Cir. 2007) (en banc).").

Here, Defendants have proven by clear and convincing evidence that IBT, its principals, and counsel – all lawyers – have abused the legal process by filing, pursuing, and then dismissing this frivolous case. First, IBT and its counsel knew or should have known that this case was frivolous, or worse yet, in view of its strategy, proceeded with reckless disregard for the truth. IBT produced no documents evidencing any infringement investigation. *See Micromesh Tech. Corp. v. American Recreation Products, Inc.*, No. C-06-6030 (MHP), 2007 WL 2501783, at *4 (N.D. Cal. Aug. 30, 2007); *see also F&G Research*, 2007 WL 2774031, at *13 (Rule 11 and 35 U.S.C. § 285 sanctions warranted in part because "counsel made no reasonable inquiry into the

veracity of the allegations.”). This failure is particularly egregious since the ProtectorSuite software was freely available for download via the Internet, and fingerprint reader “dongles” were widely available for around \$50 before IBT filed suit. And in spite of Federal Circuit authority requiring that a plaintiff obtain and test accused devices before filing suit, IBT did not do so. *See Judin v. United States*, 110 F.3d 780, 784 (Fed. Cir. 1997).

IBT and its counsel also knew or should have known that its contrived construction of “limited exception mode” would not withstand scrutiny. Each party that IBT approached regarding infringement independently informed IBT that its claim construction argument was frivolous, but IBT proceeded undeterred.

IBT also failed to perform a reasonable inquiry to ensure that its contentions avoided the prior art. *See F&G Research*, 2007 WL 2774031, at *13-14. Before the suit was filed, various defendants provided evidence that IBT’s claim construction positions rendered the asserted claim invalid. Indeed, there were a multitude of invalidating biometric prior art products on the market that functioned identically to the accused products long before the patent was filed – and IBT and its counsel knew about them. The accused ProtectorSuite software distributed by AuthenTec and used by Toshiba was a direct descendant of the prior art Veridicom software identified to IBT and its counsel by Acer before the suit was filed. For these reasons alone, the case is exceptional.

IBT and its counsel’s strategy and litigation tactics comprise misconduct that forms an independent reason to find this case exceptional. IBT’s conduct demonstrates that it never had any intention to try this case, but instead that its tactics were motivated solely to keep the case going and drive up Defendants’ costs to extract settlements from those who knew the case lacked merit, but settled to avoid litigation costs. Throughout the case, IBT pursued discovery, but IBT

made no effort to obtain the evidence it would need to try this case. IBT did not even review the materials it received. Remarkably, two years into the case, IBT filed with the Court the exact same infringement charts that it had sent with its notice letter. In its witness list filed with the Court, IBT admitted that it had not yet identified users of the alleged method – evidence necessary to pursue the case. IBT also avoided questioning deponents about the substance of the summary judgment motion, even objecting when the prior art was raised on redirect.

To keep this case going, IBT went as far as to argue that its own claim constructions could be wrong, but still failed to revise its positions. *See* 4/8/2011 IBT's Rule 56(d) Response at 1 [DE 183]. IBT's reliance on its original claim constructions after it itself said they may be wrong reeks of objective baselessness: "simply placing words on a document does not constitute good-faith litigation practice unless the plaintiff's assertion is supported by a minimally competent investigation and analysis." *Micromesh*, 2007 WL 2501783, at *6.

IBT's strategy with regard to Defendants' summary judgment motion is more of the same. Defendants' motion established that IBT's theory of infringement was baseless and without merit. Rather than address the motion on the merits, IBT delayed this case via an objectively baseless Rule 56(d) motion. Given the opportunity to file an untimely substantive response, IBT did not cite a single production document – even though its counsel declared under penalty of perjury that it could not respond without additional discovery. At the July 2011 summary judgment hearing, IBT wasted the Court's and the Defendants' time, wholly unwilling or unable to explain the merits of its case. *See* Transcript, 43:17-19. IBT evaded this Court's direct questioning, misrepresented the state of the prior art, and avoided answering questions concerning IBT's capitalization, ownership, and licensing activities. Ultimately, IBT retreated to

requesting additional delay by again urging the Court to appoint a special master.

When the Court finally indicated it would appoint a special master, IBT changed its mind and objected to the appointment. When the special master was appointed over IBT's objection, IBT moved for a voluntary dismissal with prejudice to avoid a determination on the merits. At each turn, IBT's behavior evidences vexatious tactics designed to drive up litigation costs and avoid a timely disposition on the merits solely to extort settlements. IBT and its counsel's actions have led this Court to determine that this is an exceptional case under Section 285.

Repayment of Defendants' attorneys' fees and litigation costs is necessary to avoid a gross injustice. Since the Court has determined that this case is exceptional, the decision to award attorney fees "is discretionary and permits the judge to weigh intangible as well as tangible factors: the degree of culpability of the infringer, the closeness of the question, litigation behavior and any other factors whereby fee shifting may serve as an instrument of justice." *Superior Fireplace Co.*, 270 F.3d at 1378 (quotation omitted). An intervenor is entitled to its attorneys' fees and costs just as any other prevailing party. *See Int'l Rectifier Corp. v. Samsung Elecs. Co.*, 424 F.3d 1235, 1241 (Fed. Cir. 2005) ("the mere fact that a party voluntarily intervened does not preclude an award of attorney fees").

Complete repayment by IBT of all attorneys' fees and litigation costs incurred by Defendants is warranted. IBT's litigation tactics leveraged IBT's ability to force practicing entities to incur substantial litigation costs to fight IBT on the merits, rather than bowing out for a nuisance-value settlement. IBT candidly admitted to this Court that a patent case routinely involves the expenditure of millions of dollars in attorneys' fees – the substantial costs of defense formed the basis of IBT's extortive scheme. Allowing IBT simply to "walk away" will result in

gross injustice to Defendants. The Federal Circuit's recent *Eon-Net* decision confirms that Section 285 should be invoked to avoid such injustice:

[T]he appetite for licensing revenue cannot overpower a litigant's and its counsel's obligation to file cases reasonably based in law and fact and to litigate those cases in good faith....Here, the district court did not clearly err when it found that Eon-Net filed an objectively baseless infringement action...and brought that action in bad faith, specifically to extract a nuisance value settlement by exploiting the high costs imposed...to defend against...baseless claims.

Eon-Net, 653 F.3d at 1328. Section 285 is an appropriate tool to counter the “derelict and egregious practice unfairly transferred the costs of its pre-filing burden to [defendants], and attorneys’ fees and costs are thus necessary to correct this imbalance.” *Micromesh*, 2007 WL 2501783, at *8.

3. Fed.R.Civ.P. 56(h)

Rule 56 provides an independent basis for the award of attorneys’ fees. When a party opposing summary judgment submits a Rule 56(d) affidavit or declaration in bad faith or solely for delay, an award of fees is appropriate. Rule 56(d) is intended to prevent “premature entry of summary judgment,” allowing a party to extend its time to obtain necessary and specifically identified discovery in order to respond. A party requesting a continuance pursuant to Rule 56(f) must “present an affidavit containing specific facts explaining his failure to respond to the adverse party’s motion for summary judgment via counter affidavits establishing genuine issues of material fact for trial.” *Barfield v. Brierton*, 883 F.2d 923, 931 (11th Cir. 1989). If that declaration is filed solely for delay, however, sanctions can be awarded pursuant to Rule 56(h).

IBT filed a Rule 56(d) declaration stating under oath that it could not respond on the merits because it required additional discovery. That IBT did not need the discovery it requested in its Rule 56(d) declaration is conclusively evidenced in that IBT did not use any of Defendants' documents or deposition testimony to oppose the summary judgment motion. Instead, IBT relied solely on the declaration of its expert who was retained in this matter before the filing of the summary judgment motion.

Rule 56(h) expressly provides for an award of attorneys' fees and costs resulting from a Rule 56(d) affidavit filed in bad faith or solely for delay. The facts in this case show that IBT engaged in vexatious litigation tactics to delay a disposition on the merits – IBT's Rule 56(d) declaration played an important role in IBT's strategy.

4. 28 U.S.C. § 1927

Finally, an attorney who engages in “unreasonable and vexatious” conduct that “multiplies the proceedings” may be sanctioned for the costs occasioned by the attorney's objectionable conduct pursuant to 28 U.S.C. § 1927. Conduct is “unreasonable and vexatious” if it is conducted with a malicious purpose, if it amounts to objectively reckless behavior, or committed in bad faith (whether objective or subjective). *Norelus v. Denny's, Inc.*, 628 F.3d 1270, 1282 (11th Cir. 2011). The failure to investigate properly the basis for bringing suit is an example of conduct sanctionable under Section 1927—especially where an attorney blindly pushes a case forward in spite of evidence that the claims are without merit, or deliberately avoids relevant evidence demonstrating the frailty of her case. *See id.* at 1282-83. Counsel is duty-bound to cease the prosecution of a meritless case, or face a sanctions award incurred as a result.

Murray v. Playmaker Servs., LLC, 548 F.Supp.2d 1378, 1383 (S.D. Fla. 2008) (“As an officer of the court, every attorney has a duty to be candid and loyal and an attorney’s duty to zealously prosecute a case for his client cannot outweigh his or her obligation to the court.”).

5. Additional Basis of Fees Award to AuthenTec

Finally, Federal Circuit precedent supports an award of attorney fees for an intervenor, especially as in this case, where AuthenTec substantially contributed to the litigation. *See Int’l Rectifier Corp.*, 424 F.3d at 1241; *Armament Sys & Proc. v. IQ Hong Kong*, 546 F.Supp.2d 646, 657 (E.D. Wisc. 2008) (intervenor entitled to attorneys’ fee where intervenor expended significant non-redundant efforts in the litigation). AuthenTec played a key role throughout this litigation: (1) AuthenTec was the principal drafter of the motion for summary judgment; (2) AuthenTec argued the motion for summary judgment before this Court; (3) AuthenTec deposed Parker; (4) AuthenTec deposed Harris, both in his personal capacity and as IBT’s 30(b)(6) designee; (5) AuthenTec provided the main prior art references relied on in the motion for summary judgment that ultimately led to IBT voluntarily moving to dismiss this case; and (6) IBT deposed more AuthenTec witnesses than any other party. Moreover, AuthenTec coordinated its efforts with Defendants to most-efficiently combat IBT’s claims, while eliminating redundant efforts on behalf of the defense.

C. Amount of Fees and Costs Award

AuthenTec seeks reimbursement of attorneys’ fees and costs incurred from the time that it intervened in this proceeding in the total amount of \$994,422.77. Toshiba seeks reimbursement of its non-statutory costs and attorneys’ fees, amounting to \$430,011.37. The Court has reviewed

the documentation supporting the requested fees and costs amounts and has concluded that it is too non-specific to allow the Court to make a meaningful determination as to whether the claimed fees and costs are reasonable. Both AuthenTec and Toshiba have redacted their billing entries under claims of privilege, and many of AuthenTec's costs receipts are indecipherable. The Court requests that AuthenTec and Toshiba submit unredacted copies of their fees and costs requests to allow the Court to conduct an *in camera* review thereof. Defendants indicate that they request fees and costs over and above what is documented in their motion. The Court requests that the upcoming submission also include records pertaining to those fees and costs.

III. MOTION TO STRIKE

Defendants also move to strike the declaration of Robert A. Vitale ("Vitale") pursuant to Fed.R.Civ.P. 37(c)(1). IBT submitted this declaration in response to Defendants' motion for fees. During discovery, when Defendants deposed Harris, Harris was asked about IBT's pre-suit investigation. Harris, claiming attorney-client privilege, would not answer those questions. Defendants also served IBT with a request for production, requests for admission and interrogatories seeking information concerning IBT's pre-suit investigation. IBT did not produce documents in response. Defendants also served IBT with requests for admission concerning IBT's pre-suit investigation. Again, IBT claimed that all responsive information was privileged.

Having raised privilege objections as a shield to block Defendants' access to relevant evidence, IBT cannot now cherry pick documents that it previously withheld for use as a sword in its opposition to Defendants' motion for attorneys' fees and costs. Pursuant to Rule 26(a), a party has the affirmative duty to disclose sources of information, including the identification of

persons likely to have information to support the disclosing party's claims or defenses, and the duty to produce copies of documents it will use to support its claims or defenses. Rule 37(c)(1) explicitly contemplates that a party who fails to disclose evidence or witnesses during discovery should not be permitted to later introduce such untimely evidence to support a motion: "If a party fails to provide information or identify a witness as required by Rule 26(a) or (e), the party is not allowed to use that information or witness to supply evidence on a motion...unless the failure was substantially justified or is harmless." "It is well settled that Fed.R.Civ.P. 37(c)(1) mandates that a trial court sanction a party for discovery violations in connection with Rule 26 by excluding the pertinent evidence, unless the violation was harmless or substantially justified." *Young v. Lexington Ins. Co.*, 269 F.R.D. 692, 693 (S.D. Fla. 2010) (granting motion to strike untimely expert report) (quotation omitted). The surprise introduction of this evidence was highly prejudicial to Defendants, who repeatedly sought such information during discovery. The Vitale declaration is stricken in its entirety, and IBT may not rely on any exhibits thereto that it previously withheld.

IV. CONCLUSION

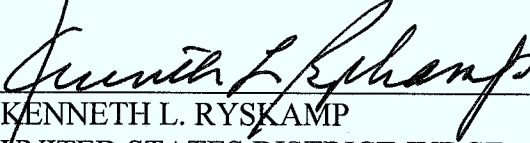
THE COURT, being fully advised and having considered the pertinent portions of the record, hereby

ORDERS AND ADJUDGES that Defendants' consolidated motion for attorneys' fees and costs, filed November 28, 2011 [DE 289], is GRANTED. The fees shall issue from IBT and its principals, Harris and Beauregard and the Niro law firm. Attorneys employed by the Niro law firm are not liable for the fees and costs. Defendants shall submit unredacted billing records for

an *in camera* inspection within ten days of the date of this order. It is further

ORDERED AND ADJUDGED that Defendants' motion to strike the declaration of Robert A. Vitale, filed December 13, 2011 [DE 302], is GRANTED as explained herein.

DONE AND ORDERED at Chambers in West Palm Beach, Florida, this 29th day of August, 2012.


KENNETH L. RYSKAMP
UNITED STATES DISTRICT JUDGE